

HOME-BASED REINFORCEMENT AND THE MODIFICATION
OF PRE-DELINQUENTS' CLASSROOM BEHAVIOR

by

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ABSTRACT

The management of classroom behavior problems has been thoroughly researched in recent years and techniques by which disruptive behavior can be reduced and study improved have been developed. Most of these procedures have involved training the teacher to make social, activity, or material reinforcers contingent on appropriate behaviors. Such training or the funds to support it are not always available, however. An alternative is to have the reinforcement for a child's appropriate classroom behavior be delivered by his parents at home.

A home-based procedure seemed appropriate for the modification of pre-delinquents' classroom behavior since they lived in a community-based, family-style home which was established on a token economy where the boys earned privileges by engaging in social, self-care and academic skills. The purpose of the research presented was the development, analysis, and evaluation of a set of procedures to be used by the house-parents of this home, Achievement Place, to modify the classroom behavior of the youths in their charge.

Three experiments were carried out. In the first, the study behavior and rule violations of five boys from Achievement Place were measured by observers while the youths attended a special summer class where they worked in math workbooks. They took a daily report card that the teacher marked yes or no, depending on whether they had studied the whole period and obeyed the class rules. All yeses earned certain privileges in the home. Experiments II and III were carried out in the public school the boys attended and attempted to: 1) determine if

control over study behavior and rule violations could be achieved by a regular school teacher using the daily report card system, and;

2) discover if the daily cards could be faded out.

The results of Experiment I showed that when the teacher did not differentially mark the report card, that study declined to low levels. When she began discriminating amounts of study via cues from the observer, study improved and rule violations declined greatly. When the privileges no longer had to be earned by the boys' being marked all yeses, study again dropped and rule violations increased. Although there were no contingencies for output, number of problems worked correlated highly with the observer's definition of study behavior. Rule violations not only diminished in frequency but became qualitatively less disruptive in nature when contingent privileges were arranged via the report cards.

Experiment II, using a reversal design, showed that if a public school teacher discriminated good from bad study behavior, (she was not cued by the observer) that the pre-delinquent's study behavior could be greatly improved by having him carry the daily report card and earn privileges at Achievement Place. Study did not improve significantly for a teacher who did not differentially mark the daily card.

Experiment III showed that the daily card could be faded to only twice a week without a significant drop in study behavior.

Finally, the application of this form of behavior modification via home-based reinforcement was discussed in relation to other subject populations and advantages over teacher dispensed reinforcement were described.

INTRODUCTION

The analysis and modification of children's classroom behavior has become an active area of investigation in recent years. This analysis has yielded a rich array of techniques which can modify most disruptive or inappropriate behaviors, as well as increase attention and study efficiency.

These techniques have been designed to solve the common problems in the classroom such as the lack of immediate positive reinforcement of the students' appropriate classroom behavior and the frequent inadvertent reinforcement of the students' inappropriate behaviors by the teacher. Behavioral researchers have devised three classes of reinforcement technique to solve these problems: 1) social reinforcement, increased and contingent teacher praise and attention; 2) material and activity reinforcement (materials, privileges or activities) delivered in class, and; 3) remote praise, materials, privileges or activities.

Excellent examples of the social reinforcement technique have been provided by Hall, Lund, and Jackson (1968) and Hall, Panyon, Rabon, and Jackson (1968) who demonstrated that "positive" teacher attention alone, made contingent on study behavior, can greatly increase this response class. Thomas, Becker, and Armstrong (1968) have replicated this finding and in addition, suggest that "negative" teacher attention may also serve as a positive reinforcer. Nagging, scolding, or criticizing a child may very well make him behave worse. Madsen, Becker, and Thomas (1968) have also shown the power of teacher praise and attention. In their study, classroom rules alone had no effect on inappropriate

behaviors, but rules and praise contingent on appropriate behavior caused a great reduction in inappropriate behaviors, on target children. Appraising the practicality of the social reinforcement technique one must consider that in all of these studies, the teachers were given special training. Some simply met with the observers each day, while some attended seminars on the application of behavior principles. In one case, teachers required extra devices to help monitor their own behavior (Thomas et al., 1968). In another (Madsen et al., 1968), the teachers were actually unable to carry out one of the experimental conditions (ignoring inappropriate behavior) even after extensive training. Thus, the social reinforcement technique which appears at first glance to be the most elementary and straightforward of techniques, actually requires extensive teacher training which may make it impractical to apply in some situations.

The second technique, material and activity reinforcement in the classroom, has been investigated in several studies. Frequently, the material and activity reinforcement has taken the form of play activities. Free-time (Osborne, 1969), going to lunch early and extra play activities (Barrish, Saunders, and Wolf, 1969), free activities (Surratt, Ulrich, and Hawkins, 1969), and simply high probability behaviors (Honne, deBaca, Devine, Steinhurst, and Rickert, 1963), have all proven to be quite powerful reinforcers for elementary school children. In addition to being highly reinforcing, free-time for activities appears to be easily dispensed and resistant to satiation.

Material and activity reinforcement does, however, have some impractical features. Candy and inexpensive toys (O'Leary, Becker, Evans, and Saudargas, 1969), money (Meichenbaum, Bowers, and Ross,

1968) and an almost unlimited list of edibles, activities, objects, and articles of clothing (Cohen, Filipczak, and Bis, 1967; Wolf, Giles, and Hall, 1968) were used as reinforcers in the classroom. In all cases they were earned via a token system in the classroom, i.e. the students earned points, stars, or slips of colored paper during the class for various appropriate behaviors and later exchanged them for the items mentioned above. These token systems were usually expensive to run and complicated for a teacher to maintain by herself. One program (Wolf et al., 1968) cost an average of \$250 per student per year. Regardless of the cost, some school administrators would refuse to use a system that "bribed" the children into being good or studying. Also, while free-time is "free", as Barrish et al., (1969) noted, a good deal of teacher time may be necessary to prepare "special activities" that are reinforcers. For these reasons, material and activity reinforcement is often impractical.

The third technique, remote reinforcement provides praise, materials, activities, etc. outside class for behavior in class. Remote reinforcement procedures have been employed and researched least of all. In two almost identical studies (Cantrell, Cantrell, Huddleston, and Woolridge, 1969; Thorne, Tharp, and Wetzal, 1967) parents were instructed to set up goal behaviors for reinforcers to be obtained outside of class. School runaway behavior, truancy, theft of school supplies, and hyper-aggressivity in class were described as being eliminated once reinforcers for incompatible behaviors were arranged at home. Both studies used point systems to a certain extent. Youths earned points for going to school, being on time to class, doing homework, etc., and could spend points on privileges, money snacks and so

on. Unfortunately, only anecdotal reports of the success are available for evaluating these programs. They would appear to be ideal for teachers since they require no extra training and little extra time on the teacher's part although cooperation from parents is essential.

McKenzie, Clark, Wolf, Kothera, and Benson (1968) have reported a similar but better controlled study. They had a pay-for-grades system in which children earned their weekly allowance at home by working on reading and arithmetic materials at school. Small (16-18%) but statistically significant improvements were seen in time spent attending to these materials in class with this form of parent dispensed reinforcement compared with a baseline condition. That children's classroom behavior can be modified appears to be an established fact. The question then becomes, "What is the most practical method of modification?" The answer to this must, of course, depend on many factors including time allowed to train teachers, monitor them and give them feedback, personnel available to conduct the training, the funds available, and type of behavior problem to be dealt with.

The Achievement Place Model

One common problem in our society has been the rise in juvenile delinquency (see Appendix for a review of the problem). Institutionalization has proven to be no solution since it serves largely to train youths in more advanced criminal skills and new rehabilitative approaches are currently being sought. As Twain (1966) has noted, "...there is a great effort being made in the field of corrections toward increased community based programs." These programs have taken the form of half-way houses (Kennedy, 1964; McNeil, 1967), foster homes (Witherspoon,

1966), or residential centers (Montone, 1967), all of which serve as alternatives to incarceration in state institutions.

This community-based approach has recently been combined with the application of learning principles and behavior modification techniques into a comprehensive program which should have wide general application for the treatment of pre-delinquents. In this approach, recently formulated into the Achievement Place Model (Phillips, Wolf, Bailey, and Fixen, 1970), the misbehaviors of young adolescents are seen as the product of unfortunate learning opportunities and rehabilitation proceeds by teaching the youths more appropriate and socially acceptable behavior repertoires. This is carried out by a pair of specially trained "teaching-parents" who systematically model and instruct appropriate repertoires and provide corrective reinforcement contingencies. Measurement of the effects of various procedures are continuously made so that precise evaluation of teaching effectiveness may be obtained. It is assumed that once the appropriate behavior repertoires are acquired, they will be maintained outside of the home by the normal community reinforcers naturally available.

The purpose of the research to be presented was to develop, analyze, and evaluate, a set of procedures that could be applied by the house-parents of such a community-based home for pre-delinquent boys to improve the classroom behavior of the boys in their charge. Several practical constraints were imposed, given this objective. The final procedures had to be applicable in a community-based program where there would be no funds for training teachers, paying or training observers to gather data or cue teachers (observers were used to gather data in this study but would not be required in general application) and no

money especially allocated for material reinforcers. This meant essentially that teachers could not be asked to take continuous data, arrange significant contingencies, or deliver material reinforcers. Also, we could not ask them to spend much extra time with the youths, since they are responsible for many students in a day. We also knew that the majority of youths who would come to a community-based foster home for help, would be behavior problems at school. That is, in most cases the problem of utmost importance would be to keep a youth from being thrown out of school. The nature of this condition dictated that behavior problems be dealt with first and academic problems second. In short, it had to be a system which cost virtually nothing, which involved almost no training and required almost no time on the part of the teacher, which produced rapid and significant reduction in disruptive behavior and increase in appropriate behavior, and which could be overseen by house-parents who were knowledgeable, although not necessarily sophisticated in the application of behavior principles.

Before proceeding a brief description of Achievement Place, the home from which the subjects came will be presented.

Achievement Place, in Lawrence, Kansas, is a home-style, community-based and financed training setting for pre-delinquents. The term "pre-delinquent" is one used by the local Juvenile Court Judge in referring to youths under 16 who have committed a series of serious misdemeanors (but not felonies), and who have not been sent to the state industrial school. The home is funded through contributions from local citizens and through the County Welfare Department, since almost all youths sent to Achievement Place come from families who are on welfare. The home is run on a point or token system (Ayllon and Azrin, 1968). The boys

earn "points" by engaging in social, self-care, and school related behaviors, that are seen as necessary for their behavioral improvement. These points are then exchanged for various privileges available in the home such as permission to watch T.V., go outside, or ride their bikes, or the points may be exchanged for snacks or an allowance or certain preferred positions in the home (e.g. the "manager" or junior house-parent position).

In addition to being in sufficient trouble in the community to warrant processing through the Juvenile Court, the boys who come to Achievement Place are invariably described as problems in their public school. The problems may range from habitual tardiness or truancy, to class cutting, and acts of aggression in class. Once a boy comes to Achievement Place these major problems usually diminish somewhat but typically the boys still do not perform well in class. Teachers report that they do not pay attention, do not follow instructions, or complete assignments. Much of their time is spent in talking to others, looking out the windows, and playing with objects they bring to class. They may be one to two grades behind their peers and are almost always on the borderline of failure, rarely making passing grades. In almost every case they have been placed in special education classrooms.

Previous research (Phillips, 1968; Phillips and Wolf, 1968; Phillips, Bailey, and Wolf, 1969) has demonstrated that many different behaviors can be modified through the use of contingent points delivered and backed up in the home. Aggressive statements have been eliminated, tardiness reduced, room cleanliness improved, and homework accomplished when points were given and taken away contingent on the occurrence or nonoccurrence of a particular behavior. Achievement

Place is an ideal setting in which to analyze the effects of a remote reinforcement technique where reinforcement is delivered at home. Effective reinforcers have already been discovered and extensively evaluated, their delivery can be objectified and verified by means of the token system, and since the house-parents are well trained, there is little problem with inconsistency in the home.

Three experiments were carried out. Experiment I describes the results of research carried out in a special summer class which five boys from Achievement Place attended and where precise control over materials, activities, and teacher activities were possible. Experiments II and III present the extension of these procedures to modify these youths' behavior in public school.

EXPERIMENT I

Effects of Differential and Non-Differential Feedback and Consequences on the School Behavior of Five Pre-Delinquents

The purpose of Experiment I was an analysis, under controlled conditions, of the necessity of teacher discrimination of study behavior, the role of back-up reinforcers in maintaining good school behavior, and the effect of improved study behavior on actual work output.

Subjects

The subjects were five boys aged 11-15 years who had been declared dependent-neglected and assigned by the Juvenile Court to Achievement Place. Three had been labeled "school behavior problems" by their teachers, two were enrolled in special education classes, and all were

considered poor academically (i.e. grades the previous year of D- to F). One boy had been sent to the principal's office for disrupting class so often the previous year (before he came to Achievement Place), that he was suspended twice and failed the grade as a result. The two other behavior problems were considered "uncontrollable" by several teachers in the public school. One had assaulted not only other students but a teacher as well. The other was quite verbal and frequently talked back to the teacher and disrupted the class in other non-physical ways. The two boys in special education spent most of their time "daydreaming", looking out the windows, and playing with objects brought to class, according to teachers' reports.

Setting

The experiment was carried out during the summer in a special classroom setting at the University of Kansas. The room was equipped much like a regular schoolroom with desks, a blackboard, pictures on the walls, a pencil sharpener, and waste basket. The boys sat facing an observation booth (with one-way mirrors), the blackboard, and the teacher's desk. A closed circuit television camera with a fast (f 1.9) wide-angle lens was mounted on a wooden cabinet eight feet above the floor and to the right and behind the subjects. A microphone was suspended about one foot from the ceiling and was directly above the middle of the five subjects' desks. This camera and microphone were connected to a monitor and video recorder in the observation booth. All sessions were tape recorded for later use.

The teacher was instructed to be pleasant but not to praise or disapprove of any behavior for the duration of the study. The first

day of the summer school, the teacher introduced herself and chatted briefly with the boys about the class they would be attending. She then listed the following class rules on the blackboard: 1. Do not leave seat without permission; 2. Do not talk without permission; 3. Do not look out the windows; 4. Do not tilt desks; 5. Do not make noise; 6. Do not disturb others. She then added at the bottom, "Remember: You should work the whole period!" (The rules were compiled from those suggested by the boys' teachers in the public schools.) Next, the youths were each given a math workbook¹ and told that they were to work on them during each class meeting and that if they had any questions on the problems they could raise their hand to ask for help and the teacher would call them up to the desk. The class differed from most in that there were no general class discussions or lectures by the teacher. Two half-hour sessions, separated by a 10-minute break, were held each morning five days a week.

Observation technique

Two experienced observers were stationed in the observation booth, each with a stopwatch, clipboard, and data sheet marked off in boxes for 10-second interval observations (Hall, et al., 1968). One observer was given a definition of "rule violations" and scored all such violations for all the boys (the boys sat close enough and the observer's vantage point was such that all could be easily seen). The second observer was given a definition of "study behavior" and also scored all the boys for this category. Observations began when the teacher said,

¹ Durell, T., Hagaman, A., and Smith, J. Arithmetic for Today (Books 3-II). New York: Charles E. Merrill, Inc., 1960.

"Okay, I guess it is time to begin." (or the equivalent) and ceased when she similarly indicated that the thirty-minute session was over.

Inter-observer agreement was analyzed by having a third observer periodically make a simultaneous but independent observation record. Agreement was measured by comparing the two records for agreement interval by interval and the percent agreement was calculated (number of agreements X 100 ÷ the total number of intervals observed).

Behavior definitions

An instance of rule violation was scored for any 10-second interval for any boy who violated any of the rules listed on the blackboard which included the following behavioral definitions:

talking without permission: any vocalization audible in the booth without the subject's being called on by the teacher.

making noise: tapping pencils, hands, or feet loud enough to be heard in the booth, included noise made by dropping materials if it can be heard in the booth.

out of seat: subject must break all contact with his assigned seat, i.e., no part of the body touching any part of the chair or desk top.

disturbing others: touching another student (directly or indirectly) or article which he is holding or is in possession of; gesturing or posturing in the direction of another student sufficient to make him look up from his work.

desk tilting: lifting any two legs of desk off floor while still seated in it.

looking out window: head and eyes oriented in direction of window

(which was behind the boys and therefore required them to turn at least 90° in their seats).

Study behavior was defined in terms of on-task behavior, i.e., head and eyes oriented at workbook materials. Any other behavior (e.g., looking out the window or at the clock, etc.) was scored as non-study except: 1) when a student had permission to be away from the materials or; 2) if no student was at the teacher's desk, hand raised and head and eyes oriented toward the teacher was scored as study behavior. Study behavior had to occur for a full 10-second interval to be scored as study; any interruption resulted in the interval being marked as non-study.

Experimental conditions

Baseline. No observational data were taken the first day of class described above since the students were not instructed to work in the workbooks and the session was merely introductory in nature. From the second day forward, however, the two measures, study and rule violation behavior, were taken for each boy for every thirty-minute period. During the baseline the youths simply came to the classroom each morning and worked in the workbooks. No programmed consequences occurred for either studying or doing the math problems although the teacher graded the subjects' work at the end of each day and returned the graded work. The number of problems worked and the number correct were recorded each day for each boy.

"Yes" only condition. The purpose of the first condition was to determine the effects of back-up reinforcement but non-differential feedback to the youths. The boys were required by the house-parents

of Achievement Place to carry a daily report card (4 X 5 inches in size) shown in Fig. 1

Figure 1 about here

They were told that the teacher would mark them yes or no depending on whether they had "obeyed the classroom rules" and "studied the whole period" for both sessions. The boys were also told that if they received all yeses they would earn sufficient points (1000) to purchase three significant privileges for the remainder of the day. These were snacks, T.V., and permission to go outdoors. If they received even one no, they were told that they would lose all these privileges and they would have to do extra chores if they wanted to earn them back.

The youths brought the cards to school and gave them to the teacher at the beginning of the first period. At the end of the second period, the teacher would usher the youths out to the waiting car and return to her desk. Since we wanted to measure the effects of non-differential feedback, the teacher was instructed to mark all categories yes for all boys regardless of whether she thought they had "studied the whole period" or "obeyed the classroom rules." After marking the cards and signing them, she took the cards out to the youths. The time required from their leaving the class until they got their marked cards, averaged about two minutes.

The house-parents acknowledged the check-marked cards and dispensed the privileges matter-of-factly to the boys.

"Yes" and "no" condition. In the second condition, the effects of the teacher discriminating between "good" and "bad" class behavior were

		Name: _____
MATH I		
Yes	No	
_____	_____	Obeded the classroom rules
_____	_____	Worked the whole period
MATH II		
Yes	No	
_____	_____	Obeded the classroom rules
_____	_____	Worked the whole period
Date: _____		
Teachers Signature: _____		

Figure 1. Daily report card taken by all subjects during Experiment I.

analyzed. To insure precision in marking the cards, the decision to mark yes or no was based on the data kept by the observers in the booth. A cut-off of 10% was used for rule violations and 90% for study behavior. That is, if a boy had more than 10% of the intervals for either period marked as rule violations he was marked no for that period; he was marked yes if he had less than 10% rule violations. Likewise, if less than 90% of the intervals were marked for study he was checked no but 90% or more resulted in a yes for that period.

The percentages for each boy were calculated as soon as each class was dismissed and the teacher was accordingly instructed, through the one-way mirror, how to mark the cards. She then took the cards to the youths as before. Privileges were granted or withdrawn at Achievement Place based on the markings of the cards.

No back-up condition. In order to assess the effects of back-up reinforcers in the home, the next condition involved the removal of these back-ups. The boys were told by the house-parent one morning before they left for school, that they did not have to receive all yeses to earn the privileges. Rather, they were told that they were granted them free as of that time. They were still required to take the cards for the teacher to mark, however. The teacher still assigned the marks based on the observation data to keep this form of feed-back to the boys constant.

"Yes" and "no" condition. After several days of the previous condition, the boys were instructed before they left for class that they would once again have to earn the privileges by getting marked all yeses on the daily cards. Apart from this initial instruction, this condition was identical to the first yes and no condition.

RESULTS

A total of 13 reliability measurements were made throughout the study. Six reliability measurements on the study behavior definition were taken. The range of observer agreement was from 75% to 96% with a mean of 87%. Seven checks were made on the occurrences of rule violations with agreements ranging from 79% to 99% and a mean of 89%.

Data for all five boys as a group are shown in Fig. 2. The first two and one half days of the summer school the boys were perfect students; they studied more than 85% of the intervals and committed rule violations much less than 10% of the time. A steady deterioration in study and an increase in rule violations occurred after that, however, and on the last day of baseline, they were studying less than 35% of the intervals and rule violations occurred in more than 60% of the intervals.

Figure 2 about here

When the boys began taking the daily report card, study behavior improved and rule violations dropped drastically. But, apparently since there were no differential consequences for good classroom behavior, study again fell, this time to less than 30% of the intervals and rule violations rose to more than 25% by the end of the two week period.

On the first day that the contingencies for both behaviors were employed, all youths lost the privileges. On the second day, a great improvement in study was observed and by the third day three of five boys received all yesses by meeting the criterion for both behaviors. For the rest of the two weeks, study remained close to 95% and rule

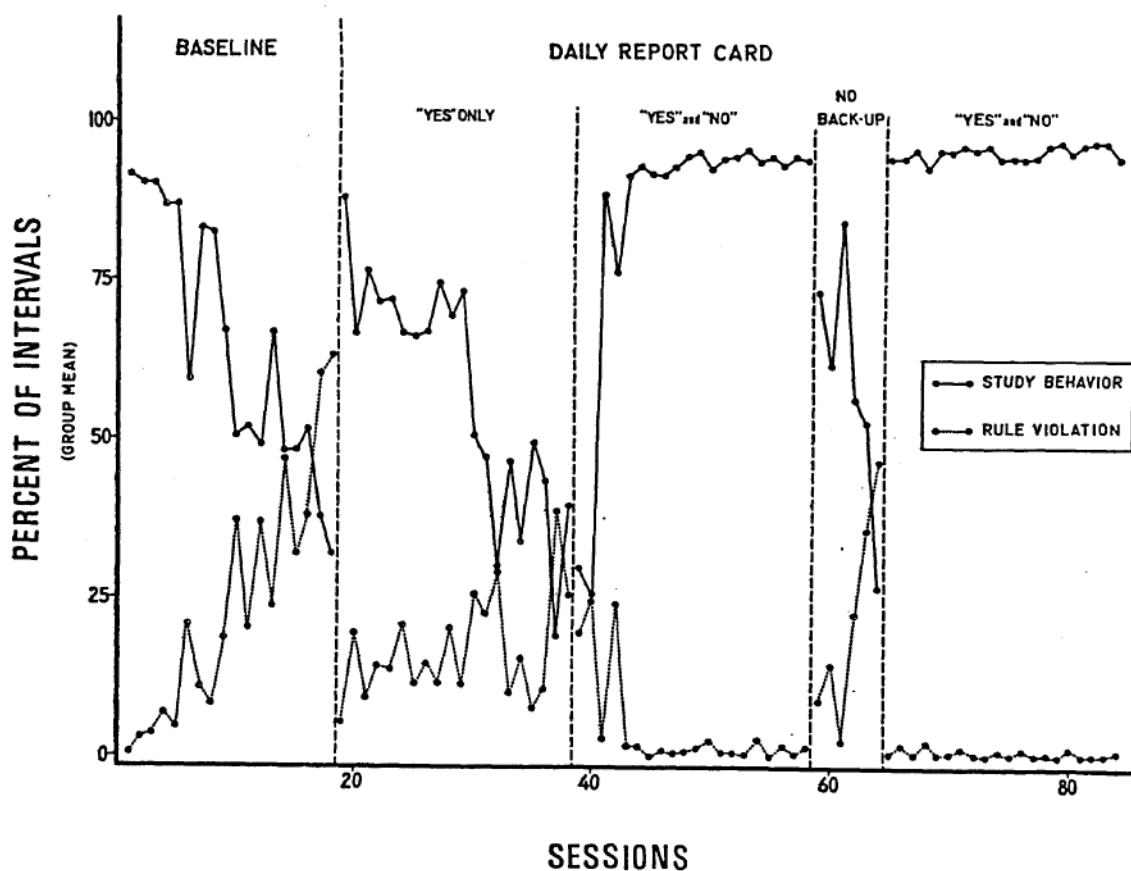


Figure 2. Mean percent of intervals of study and rule violations for all five subjects under each treatment condition.

violations occurred in less than 5% of the intervals.

On the first day of the no-backup condition, study behavior dropped to less than 75% and in three days fell to almost 25%. Rule violations dropped to about 2%, well below the 10% criterion. This almost perfect performance lasted throughout the two weeks of this condition, including the final day of class, on which teachers typically report that they cannot control their students.

Individual subject records of study and rule violations during the experimental conditions are shown in Figs. 3, 4, 5, 6, and 7.

Subjects S-1, S-2, and S-4 showed performances which were well represented by the group means shown in Fig. 2 except that they were slightly less smooth and S-2's study did not drop as much nor did rule violations increase as much during the no back-up condition.

 Figures 3, 4, and 6 about here

As shown in Fig. 5, S-3 differed in that his day-to-day performances were much more variable under the first two conditions. His study behavior took a longer time to improve under the first "yes" and "no" condition and his rule violations were higher than the others. His reversal looked like the rest but under the final "yes" and "no" condition his study behavior was consistently lower and his rule violations higher than the other subjects.

 Figure 5 about here

S-5's record of study and rule violations, shown in Fig. 7 indi-

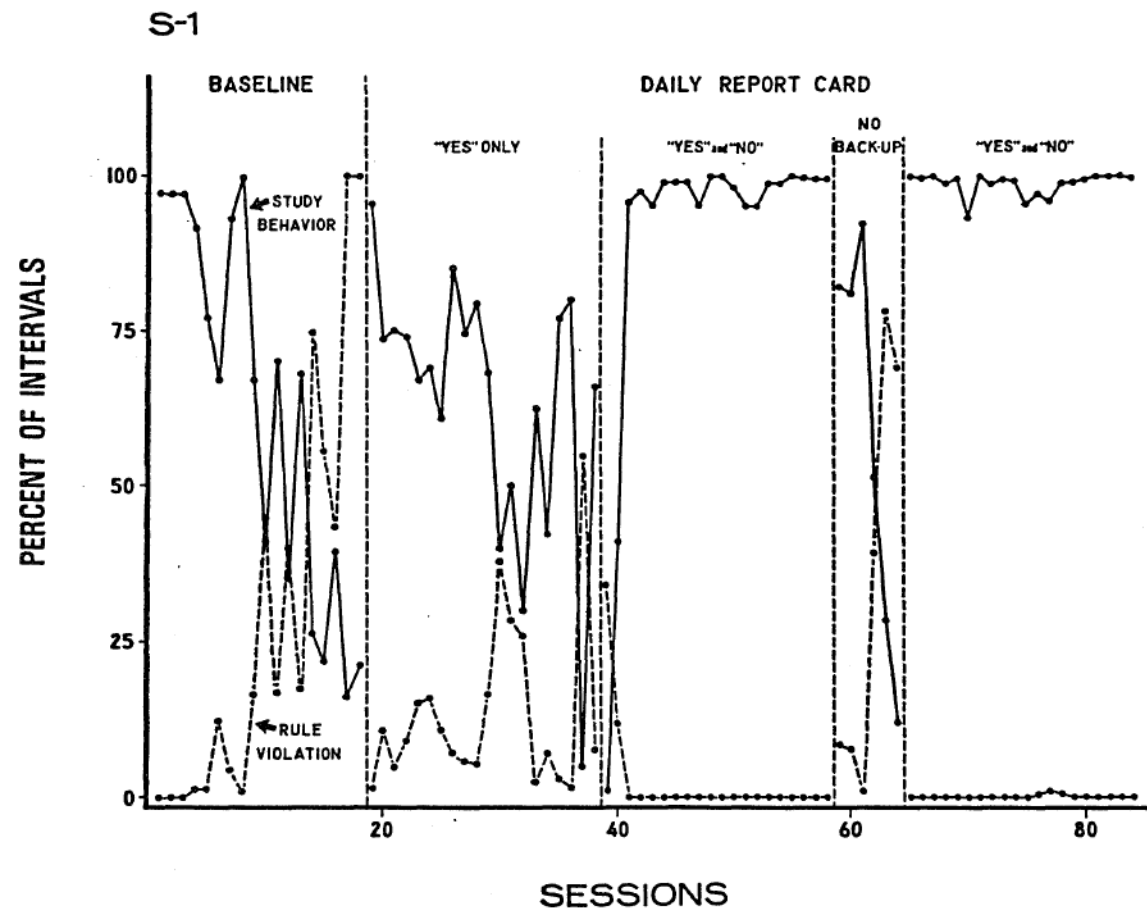


Figure 3. Percent of intervals of study and rule violations for subject S-1 under all treatment conditions.

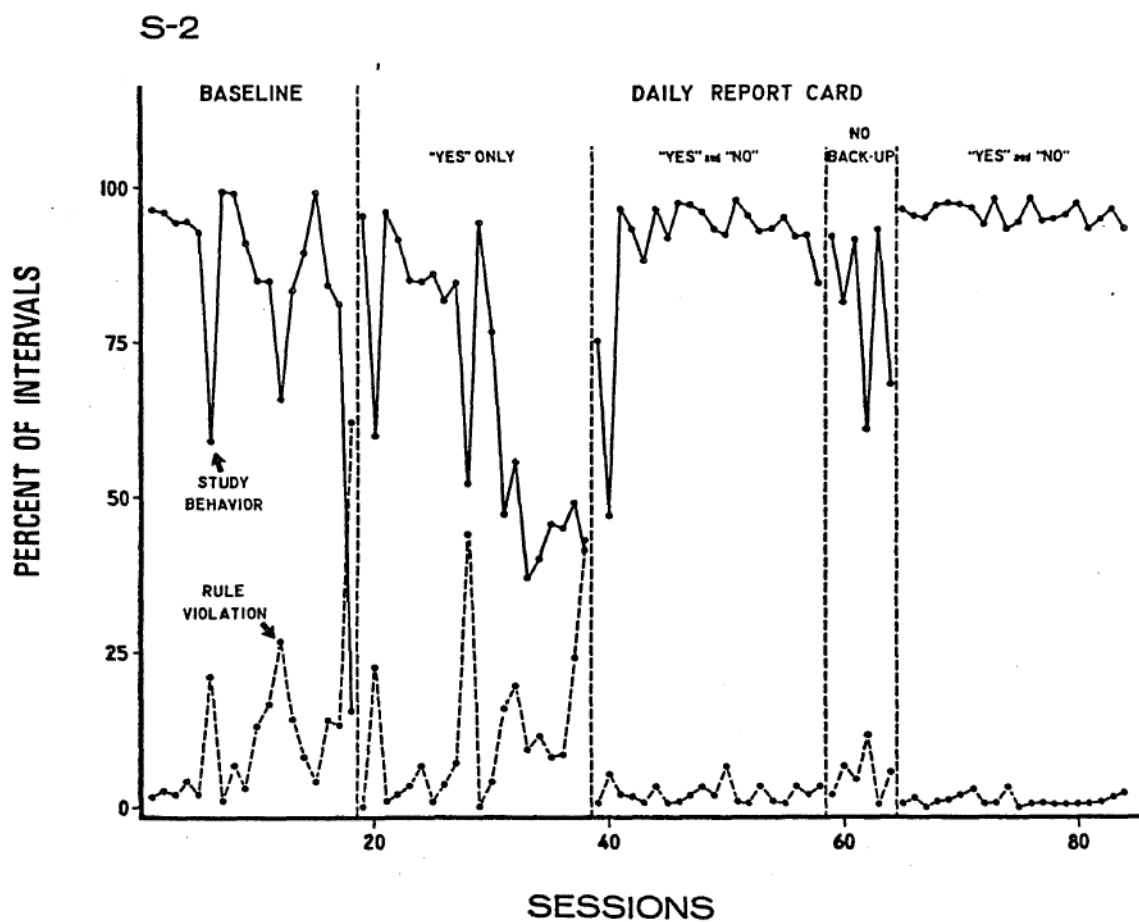


Figure 4. Percent of intervals of study and rule violations for subject S-2 under all treatment conditions.

S-3

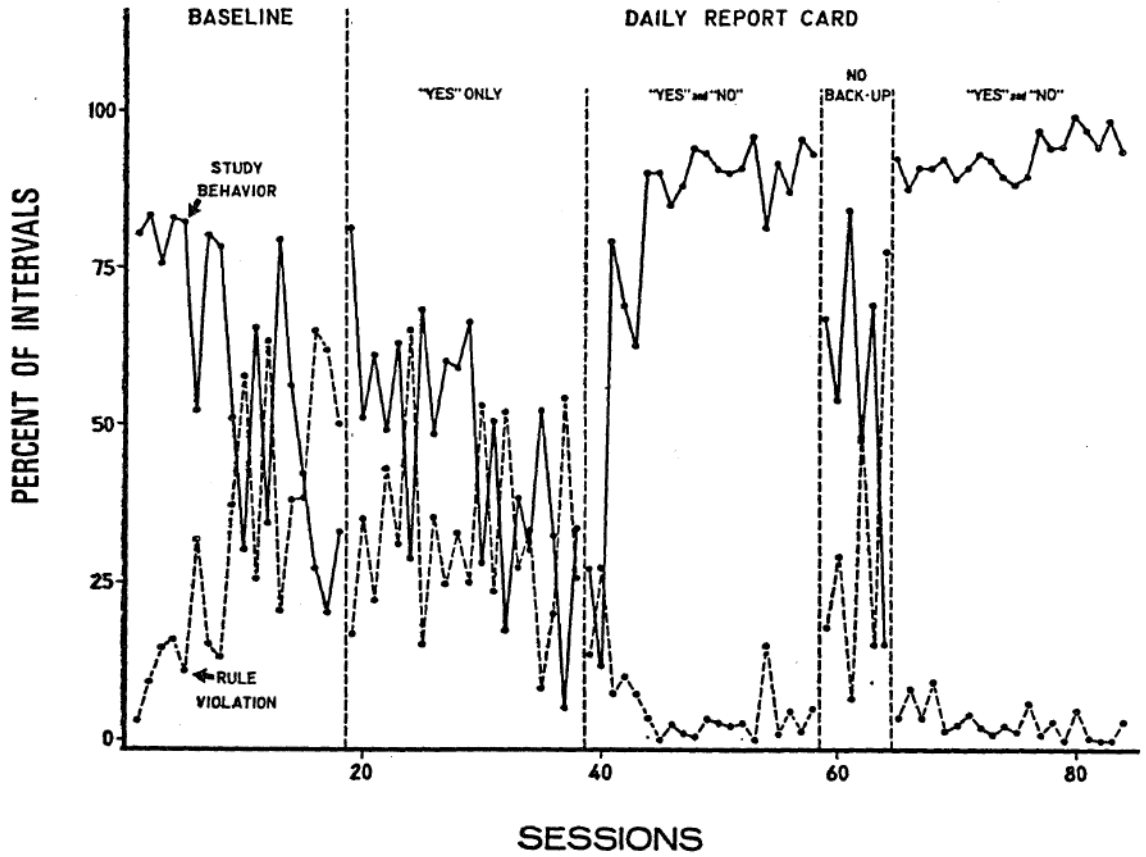


Figure 5. Percent of intervals of study and rule violations for subject S-3 under all treatment conditions.

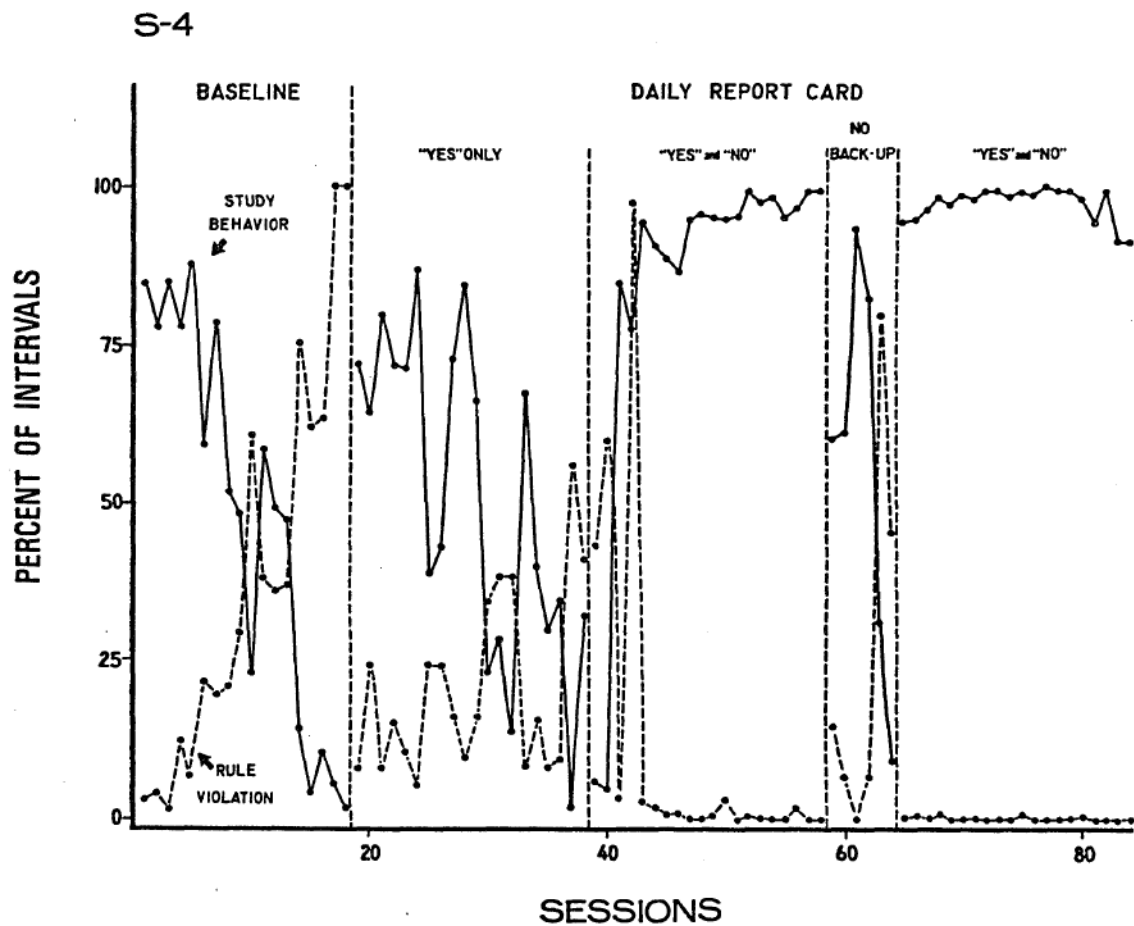


Figure 6. Percent of intervals of study and rule violations for subject S-4 under all treatment conditions.

cates that his study behavior did not deteriorate as badly under the baseline condition. In the "yes" only condition his study dropped markedly but his rule violations were not as high as the rest of the subjects. In the final "yes" and "no" condition his rule violations dropped to well below the 10% criterion but his study was consistently lower than the rest of the subjects.

 Figure 7 about here

An analysis of selected video tapes of the different experimental conditions was carried out to determine if the categories of rule violations were affected equally. Two observers simultaneously but independently viewed a tape from each experimental condition and, using 10-second intervals scored for the type of rule violation for each boy. The percent of intervals spent engaging in each type of rule violation was then divided by the total number of all rule violations for that subject for that session. Due to difficulties in obtaining reliable agreement about the distinctions between the two categories, talking-out and disturbing-others, these two categories were joined as one, called disturbing others, for this analysis. This left five categories in all which were then ranked subjectively from most to least disruptive in nature. The percent of intervals of each type of rule violation were then bar graphed with the most disruptive (Disturbing others) category to the left and the least disruptive (Chair tilting) to the right. The remaining three categories were then placed in between. Group data for all experimental conditions is shown in Fig. 8 where D stands for Disturbing-others, N for Noise-making, O for Out-of-seat,

S-5

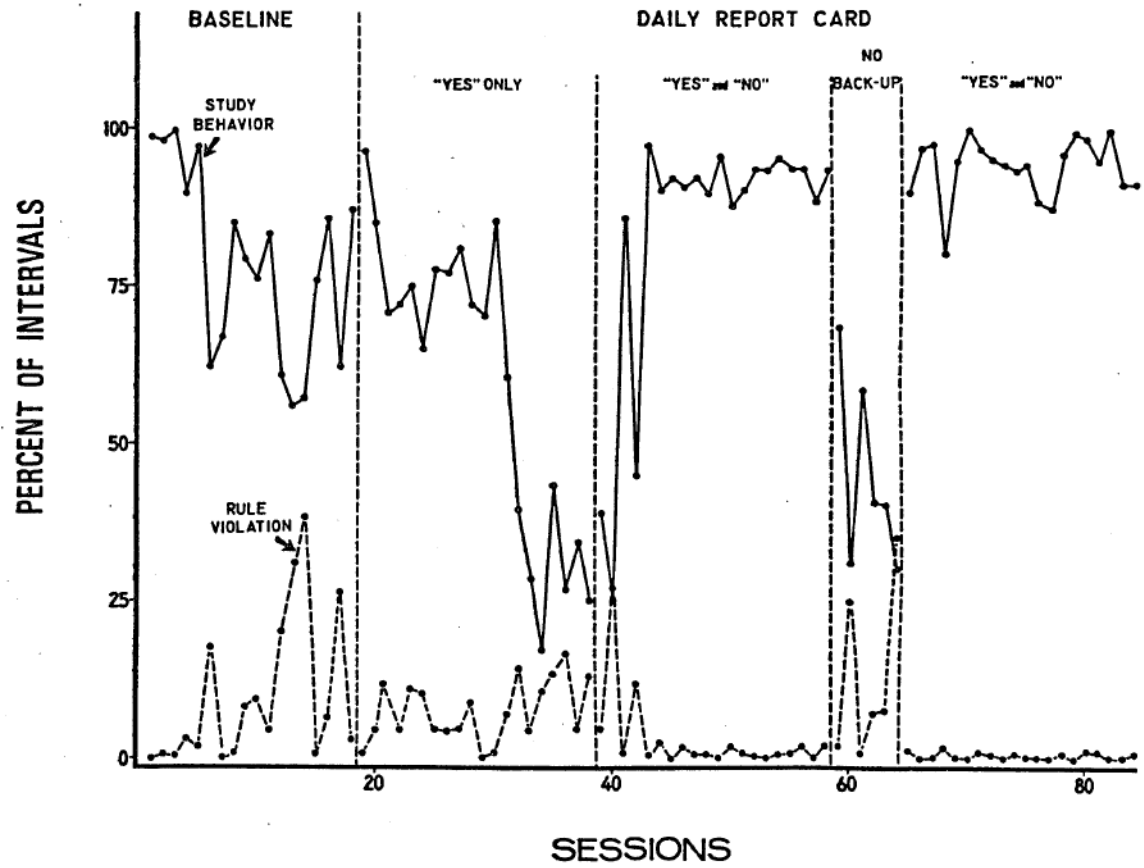


Figure 7. Percent of intervals of study and rule violations for subject S-5 under all treatment conditions.

W for looking-out-of-window, and C for Chair-tilting.

Figure 8 about here

As shown in the first panel of Fig. 8, disturbing-others was the most frequently engaged in rule violation at 49%. Looking-out-of-window was next at 39%. These data were taken from the last day of baseline, session 17. On the last day of the "yes" only condition (session 39) disturbing-others was again the most frequently engaged in type of rule violation with over 70% of the intervals being scored this way. All other categories occurred less than 10% of the intervals.

When the change to the "yes" and "no" condition was made (data are from session 55) not only did rule violations drop (as previously shown in Fig. 2) but the type of violation also changed -- to a much less disruptive type. Rule violations occurred less than 1% of the time and when they did occur they consisted only of looking-out-the-window.

When the no-back-up condition was in effect (data are from session 64) disturbing-others was again the most frequently engaged in rule violation. Sixty-five percent of rule violations this session were disturbing-others, looking-out-the-windows was second with 21%, and all others were less than 10%.

In the final "yes" and "no" condition (data from session 80) rule violations once again shifted from the disruptive end of the scale to the less severe end. In this condition, only 1% of the intervals were scored as rule violations and all of these, as shown in the last panel of Fig. 8 were look-out-the-window violations.

It appears, then, that the contingency which increases study

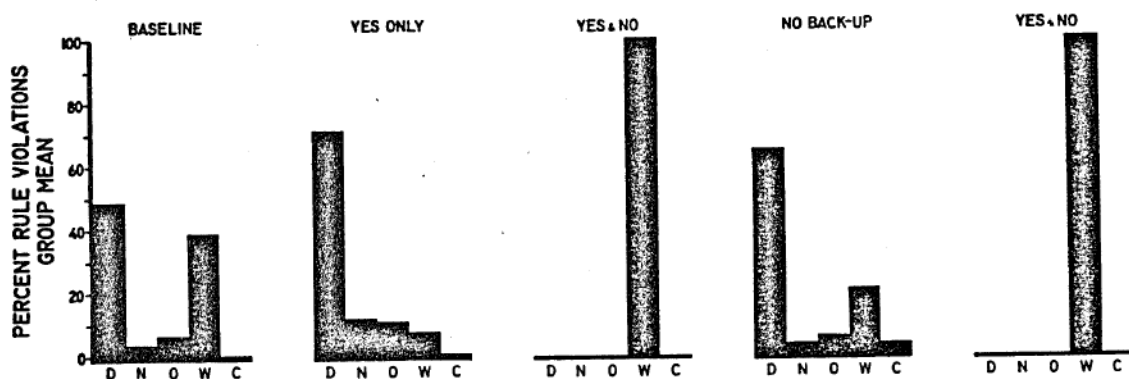


Figure 8. Total percent of intervals in which any of the subjects engaged in violating any of the rules, disturbing-others (D), noise-making (N), out-of-seat (O), looking-out-window (W), and chair-tilting (C), during one session of each condition.

behavior and suppresses rule violations also has a very desirable by-product. The rules which are violated are of a much less disruptive or severe sort and probably do not cause much harm.

Observer reliability was measured for every category for each boy for every session that was scored. Reliability was calculated by taking the larger of the two observers' scores for each category, and dividing it into the smaller to give a percentage. One hundred-twenty reliability checks were made on the data presented in Fig. 8. The range of reliability for all conditions was from 77% to 92% with a mean of 84%.

An additional analysis was concerned with the correlation between the definition of study behavior used and the actual work output of the boys during the various conditions. Figure 9 shows the total number of problems worked and the number correct under each condition for the boys as a group. During baseline conditions, the number worked dropped steadily, from 600 to less than 300, throughout the condition. The first day that they began taking the cards, the number worked increased almost to the level seen on the first day of baseline but, over the course of nine days, it dropped to less than 300 per day for all the boys together. On the first day that the youths lost their privileges for not studying according to the criterion, they also did very few problems (actually less than 100). This number increased to a high of 700 on the 6th day of the "yes" and "no" condition and then appeared to decline slightly thereafter. When the back-up was removed the number of problems worked dropped to less than 100 once more and a return to the differential consequences was followed by an increase in the number worked to over 400 where it remained stable for the two

Figure 9 about here

final weeks of the experiment. There thus appeared to be a correlation between the number of problems worked (i.e. output) and study behavior. In fact, the Pearson correlation coefficient was $+0.64$ for this correlation.

It may also be noted that, in general, the number of problems worked correctly also correlated fairly well with each of the different conditions. The increasing distance between the two lines of Fig. 12 indicates that the boys were making more and more errors over time. They correctly worked 92% of the problems during baseline, 86% during the "yes" only condition, 75% during the first "yes" and "no" condition, 73% during the no back-up, and 75% during the second "yes" and "no" condition. Possible explanations for this steady drop in accuracy over time will be discussed later.

Figure 10 shows the number of problems worked and the number correct for each individual subject under each of the experimental conditions. All subjects showed the decline in output over baseline, but most of the increase in the number of problems worked in the "yes" only condition was due to subject S-2 who did 300 problems on the first day. S-1, S-3, and S-4 showed much smaller increases and S-5 showed a small decline. All subjects dropped in the number of problems worked at the end of this condition. All subjects but S-3 showed an increase in

Figure 10 about here

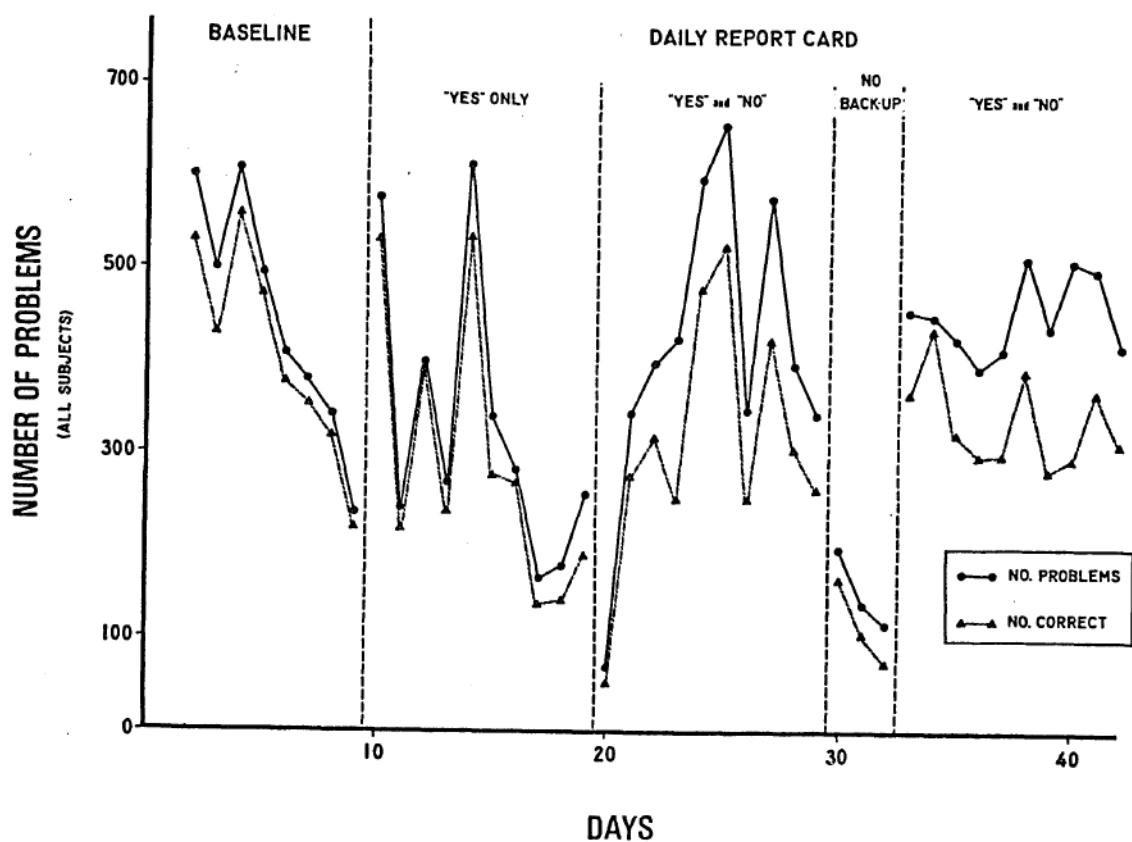


Figure 9. Total number of problems worked and problems correct for all subjects under all treatment conditions.

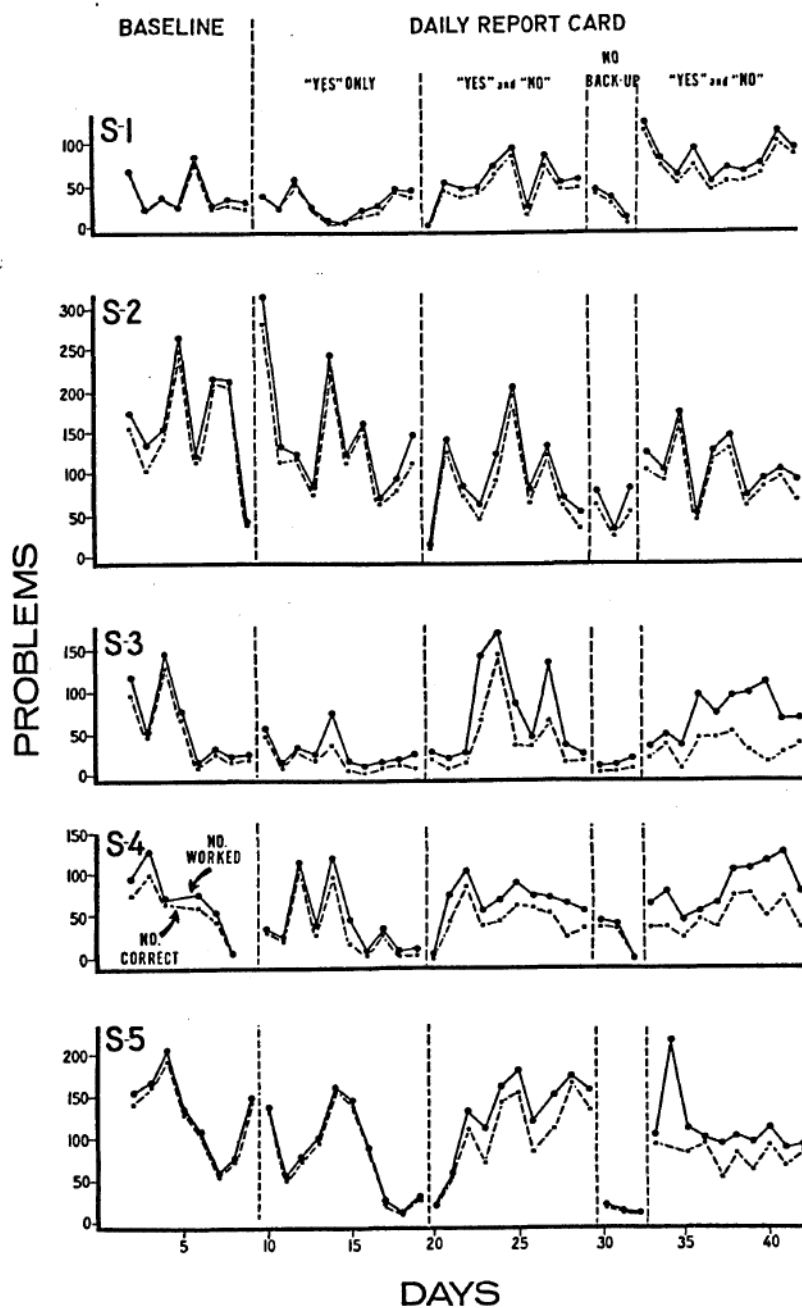


Figure 10. Number of problems worked (solid line) and number correct (dashed line) for all subjects.

output with the onset of the first "yes" and "no" condition but only S-1 and S-5 maintained this higher output. S-1, S-4, and S-5 showed the drop in output under the no back-up condition while S-2 and S-3 did about as many problems under this condition as under the previous condition. Only S-3 failed to show an increase in number of problems under the final condition and S-3, S-4, and S-5 were primarily responsible for the decrease in accuracy over time.

EXPERIMENT II

Modification of Study Behavior in Math and Common Learning Class

Subject

The subject was a 15 yr-old boy from Achievement Place who had a long history of classroom disruptiveness and inattentiveness. He had been suspended from school once for pulling a knife on a teacher. His teachers requested help with him since he seemed to them not to be "applying himself" and constantly talked out and disturbed his classmates.

Procedures

Observation and recording. The dependent variable was the percent of intervals spent in study behavior. Study behavior was defined as head and eyes oriented toward appropriate study materials. In case of a group discussion, study was counted if the youth was speaking (with permission), or looking at the speaker or toward the discussion materials. In addition, any contact with the teacher (with permission) or other behavior permitted by the teacher was counted as study behavior.

Any behaviors other than those listed above were scored as non-study.

An observer, trained in observation techniques at the Edna A. Hill Child Development Pre-School Laboratories at the University of Kansas, recorded the behaviors from the back of the classroom using a 10-sec time-sample technique. That is, at the end of each 10-sec interval she would look at the subject for a second or two and score his behavior. This procedure was different from that used in Exp. I where the observer watched the subject continuously and the whole 10-sec interval had to be filled with study behavior to be so marked. To help insure against possible observer bias, the observer was never told the purpose of the experiment or told when a change in conditions was to take place. In addition, the manipulations were such that there were no cues provided to the observer as to the conditions in effect. Simultaneous but independent observations were made with a second trained observer during five class periods. Agreement was measured by comparing the two records for agreement interval by interval and the percent agreement was calculated (number of agreements X 100 ÷ the total number of intervals observed).

Baseline. During baseline, study behavior was recorded for each class period. No feedback was given to the teacher and the subject was not told that he was being observed.

Daily Report Card. Under this condition, the subject took a daily report card for the teacher to check. Several categories, of behavior, suggested by the teacher, to be marked either yes or no were listed on the card and grades were inserted in the blanks. The categories are shown in Fig. 11.

 Figure 11 about here

The youth took the card to his teacher at the end of a class hour to be checked. The teacher was not cued by the observer. If he earned all yeses he received 1000 points or the equivalent to three major privileges at Achievement Place. These were snacks, T.V., and permission to go outdoors. Even one no resulted in the loss of these privileges and they could only be made up by doing extra chores.

No Card. In this condition, the subject was told he did not have to take the card and that he was granted the privileges free. The teacher was not informed in advance of this change in conditions.

Daily Report Card. The youth was once again required to take the card and to earn the above mentioned privileges.

All of the above conditions were carried out in a math class but only two of the conditions, baseline and daily report card, were carried out in a second class called "common learning" (which includes English, spelling, social studies, history, and current events).

RESULTS

Math Class. Baseline was carried out for nine days. Figure 12 shows that study behavior ranged from 3% to 45% during this time. When

 Figure 12 about here

he began taking the card, the subject's study behavior immediately rose

DAILY REPORT CARD		
Yes	No	
<input type="checkbox"/>	<input type="checkbox"/>	Acceptable use of class time
<input type="checkbox"/>	<input type="checkbox"/>	Assignment is completed on time
<input type="checkbox"/>	<input type="checkbox"/>	Homework assignment is ____ or better quality
<input type="checkbox"/>	<input type="checkbox"/>	Quiz or exam (if any) is ____ or better quality
<input type="checkbox"/>	<input type="checkbox"/>	Overall behavior: Good
<hr/>		<hr/>
(date)		(teacher's signature please use pen)

Figure 11. Daily report card used in Experiment II.

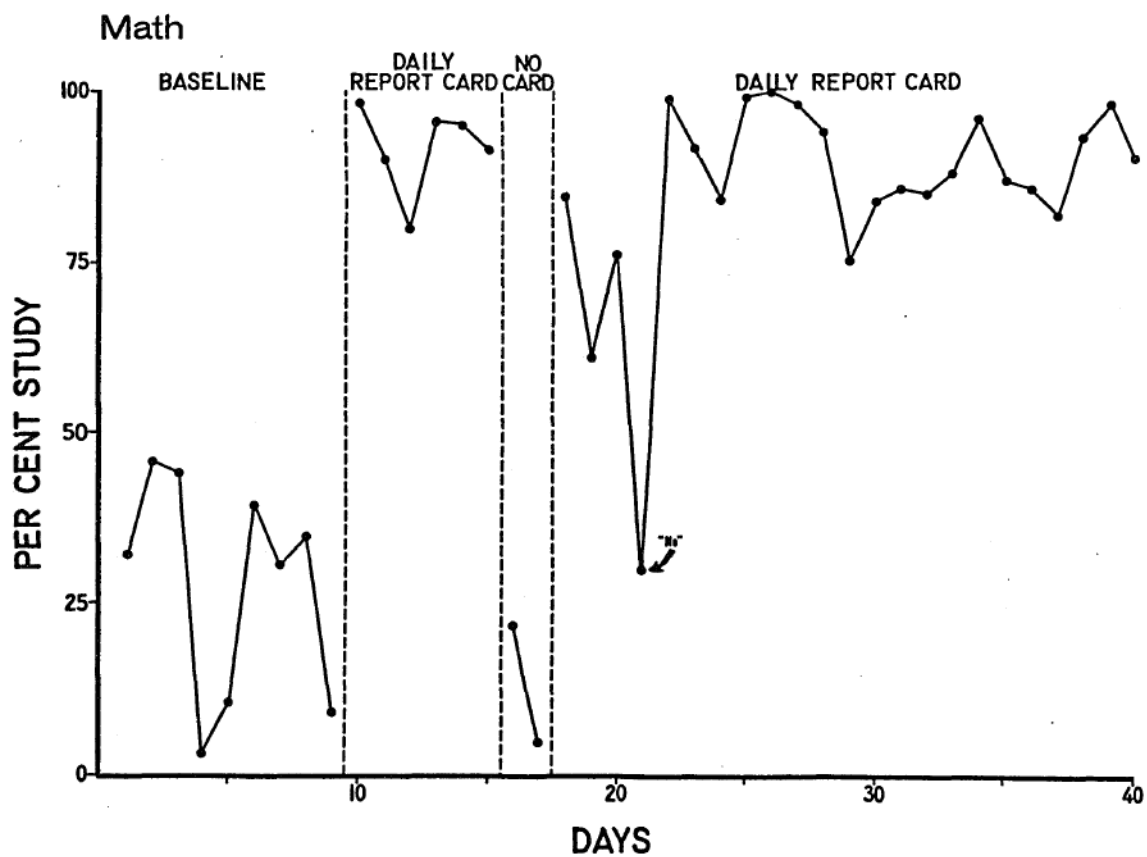


Figure 12. Percent of time spent in study by one student in a public school math class under all conditions.

to over 95% and remained high for six days. He was never marked no by the teacher during this time.

When the youth no longer had to take the card, his study dropped to less than 25% on the first day of the reversal. On the second day, study occurred less than 10% of the time and the youth was involved in a scuffle in class in which two other boys were sent to the office. The teacher told the observer, after the class, that our subject would have been sent too, except that she knew he was involved in some kind of study and she did not want to "mess it up".

The next day the subject began taking the card again and study again increased, this time to above 80%. Study behavior dropped over the next three days as the subject appeared to "test" the teacher. On the fourth day of this condition, the teacher, for the first time, marked the subject no for the studying and paying attention category (see arrow in Fig. 12). The next day, study occurred almost 100% of the time and remained high for the rest of the school term without the subject's being marked no for his class behavior. (He was occasionally marked no for not doing an assignment or not meeting criterion on a quiz or exam, however.)

Common Learning Class. Baseline in common learning was carried out for 19 days. As shown in Fig. 13 study in this class ranged from 2% to 85%, with many short up and down trends occurring during this phase. This may have been due at least in part to the nature of the

Figure 13 about here

activities in the class. On some days the teacher gave lectures, on

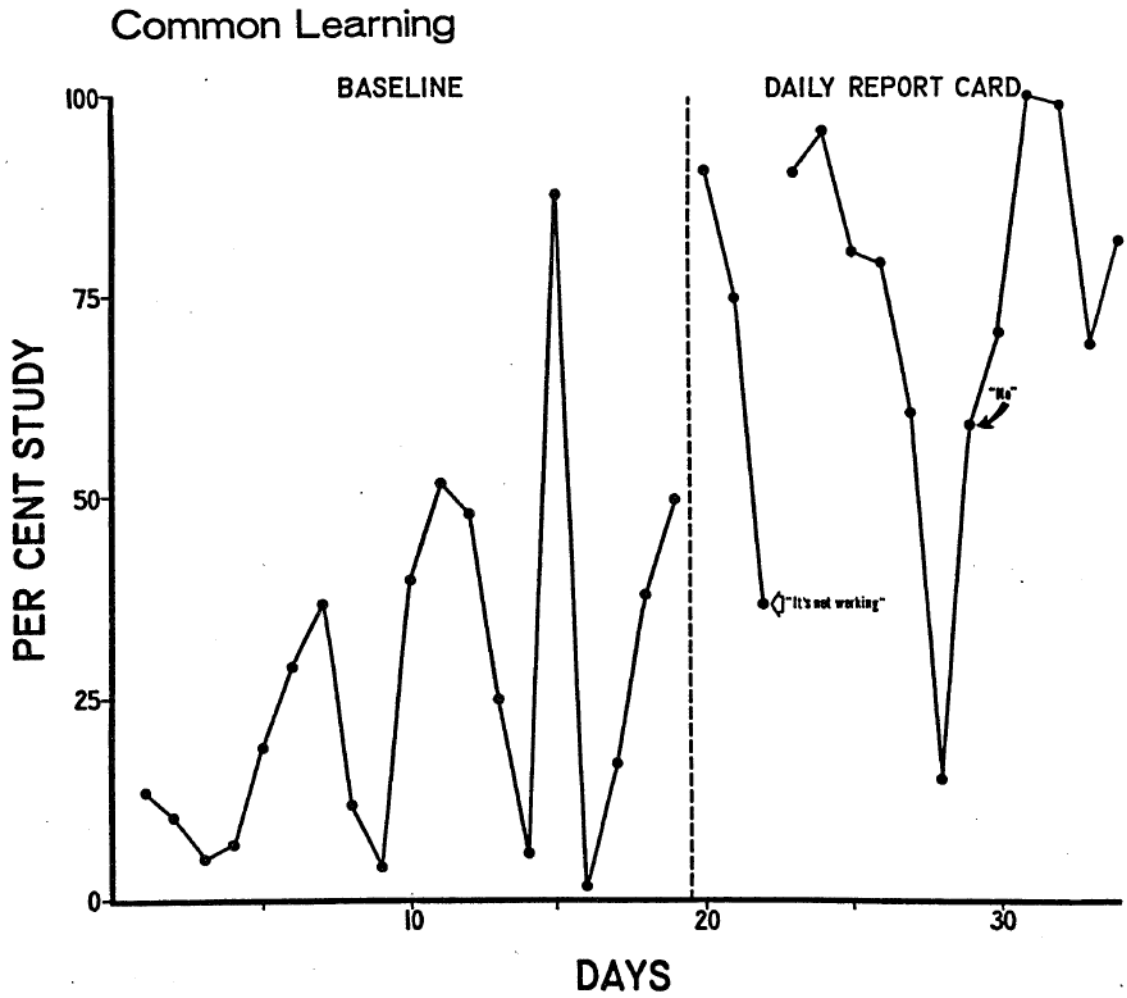


Figure 13. Percent of time spent in study by one student in a public school common learning class under all conditions.

others there were group projects, discussions, or simply free time.

On the first day that the daily report card was taken, study increased to over 90%. However, during the next three days, study dropped steadily to less than 40% on the third day of the daily card contingency. On this day, while the teacher did not mark the subject's card no, she did stop the observer at the end of class and told her that she did not think the new system was working (see open arrow in Fig. 13). Starting with the next day, more detailed descriptions of behavior were written on the card in the hope that the teacher would then be more likely to mark the card differentially. The categories added were: does not talk out at all during the period; does not get out of his seat at all during the period; does not look out the window at all.

As shown in Fig. 13, this did appear to increase the study behavior on the next day, but a steady decline in study was then seen for the next four days. On the 28th day, study dropped to less than 15% but the teacher still did not check the subject no. On the next day study was at 55%, a relatively good day for the subject, and as shown by the filled in arrow in Fig. 13, the teacher marked him no on this day. Study behavior was somewhat higher subsequently but no consistent effects were seen before the school year ended.

One point seemed clear, however, this teacher did not discriminate different amounts of study behavior (i.e. 80% vs. 15%) and from Exp. I this was shown to be crucial to the success of the home-based reinforcement procedure.

Five reliability checks were taken during the math class. Reliabilities ranged from 79% to 99% with a mean of 91%. Three checks were made during the common learning experiment with a range of 90% to 95%

and a mean of 93%.

EXPERIMENT III

Effects of Partially Withdrawn Feedback and Consequences on Study and Rule Violations in a Science Class

One question involving the use of the daily report card system is whether a youth can be "weaned" from the daily feedback and contingencies to a more intermittent basis of both. This question was addressed in the final experiment.

Subject

The subject was again a youth from Achievement Place. He too had a reputation for talking-out and disturbing-others in class and being inattentive a majority of the time.

Procedures

Observation and recording. A trained observer sat at the back of the class and recorded two classes of behavior, study behavior and rule violations, in 10-sec intervals. Study behavior was defined as head oriented toward the study materials or in the case of lecture or discussion, head oriented in the direction of the speaker or materials used by the speaker. Behaviors other than these, including laying his head on his desk, looking out the window, playing with pencils and yawning or stretching were scored as non-study. Study had to occur for the full 10 seconds of an interval in order to be counted; any break in it being marked as non-study.

Any behaviors contrary to the teacher's class rules were considered

rule violations. These were ascertained after several days of observation and in consultation with the teacher. The class rules were: no talking-out; no getting-out-of-seat, no making-noise, no dropping or throwing of materials, and no waving-of-the-arms. Any intervals in which any of these behaviors occurred were scored as rule violations.

Baseline. For four days, the observer attended each science class and recorded study behavior for the full period. She also made brief notes as to other behaviors that might be considered rule violations. The teacher was requested to continue his normal routine and, as much as possible, to simply ignore the observer.

Daily Report Card. The subject carried the card to school each day and at the end of the class took it up to the teacher to mark yes or no in the categories: Paid attention and studied the whole period; Obeyed the classroom rules; Completed homework on time and earned at least ____; Earned at least ____ on quiz or exam. (grades the youth could make if he tried were inserted in the blanks). A copy of the card used in this experiment is shown in Fig. 14. A card marked all yeses earned 1000 points for the day at Achievement Place and could be exchanged for the major privileges, snacks, T.V., and permission to go outdoors.

Figure 14 about here

No Card. For three days the youth was told he did not have to take the daily card to school and that privileges were granted free for those days.

DAILY REPORT CARD	
Name: _____	
Class: _____	
Yes	No
<input type="checkbox"/>	<input type="checkbox"/>
Paid attention and studied the whole period.	
<input type="checkbox"/>	<input type="checkbox"/>
Obeyed the classroom rules.	
<input type="checkbox"/>	<input type="checkbox"/>
Completed homework on time and earned at least ____.	
<input type="checkbox"/>	<input type="checkbox"/>
Earned at least ____ on quiz or exam.	
_____ (date) (Signature, please use pen)	

Figure 14. Daily report card used in Exp. III.

Daily Report Card. The subject again took the card and earned 1000 points by getting marked all yeses.

Fading Card. For the remainder of the semester, the youth carried the report card only on Tuesday and Friday of each week. The teacher was instructed that each card could be marked for the days in between. That is, an infraction on Monday or Tuesday could be marked on the Tuesday card and likewise, an infraction on Wednesday, Thursday, or Friday, could be marked on the Friday card. Notes to this effect were written on the bottom of the cards each day that they were taken. On days that a card was not taken, no points were earned for school but the points accumulated until the card was taken. For example, all yeses on the Tuesday card earned 2000 points and on Friday earned 3000 points. A no for either lost the same number of points.

Results

During baseline, the subject's study ranged from 40% to about 60% of the intervals scored, as shown in Fig. 15. No data on rule violations were taken during this time. When the subject began taking the card, study improved to 97% on the first day and averaged above 90% for the three weeks that he took the card. Rule violations occurred in about 1% of the intervals in this time.

Figure 15 about here

Under the condition where the subject was instructed not to take the card, study dropped immediately back to baseline levels but rule

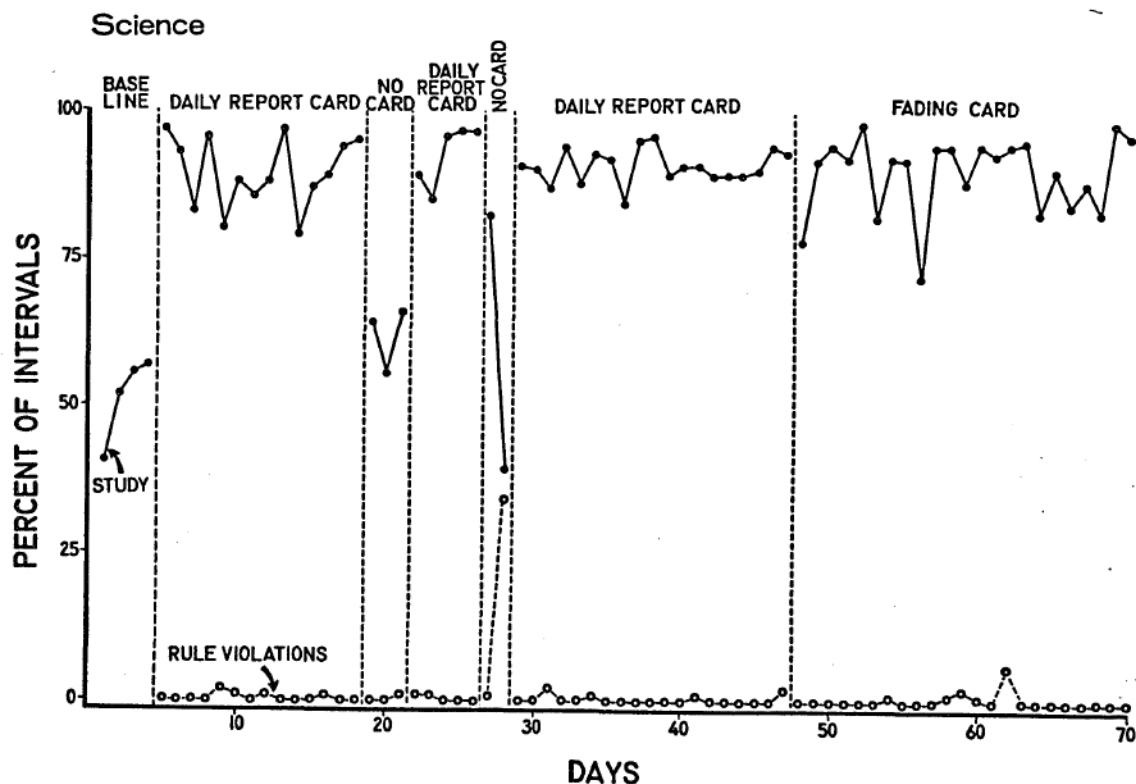


Figure 15. Percent of intervals scored as study and rule violations for one student in a science class under all conditions. The youth took the card only twice a week in the last condition.

violations did not appear to increase in frequency. When he was again required to take the card, study improved to the previous high levels and occurred over 95% of the intervals for the last three days.

On two days, the regular teacher was absent and a substitute took over the class. On these two days, the subject had the teacher write a note on a separate piece of paper indicating that the regular teacher was not present. The substitute teacher did not mark the daily-report-card. The houseparent accepted these notes as equivalent to all yesses even though the daily report categories had not been marked or even seen by the substitute teacher. As shown in Fig. 15, study dropped to very low levels during this time, reaching 39% on the second day, and rule violations rose to an all time high of 34%.

After the regular teacher returned, the daily card was in effect for almost one month continuously. Study behavior dropped below 85% on only one occasion and averaged 90% of the intervals observed. Very few rule violations occurred during this time with the most being 2% on one day.

For the last five weeks of the school term, the fading card was taken twice a week. Study behavior in general remained fairly high but fell below 85% on six occasions. The average for the five week period was 87%, only a little less than that found under the daily card condition and considerably better than baseline. Compared with the daily card, the fading card seemed to produce much more variability in study behavior. Rule violations also generally remained quite low, the highest being 6% on one day during the fading condition.

DISCUSSION

The results of Exp. I demonstrated that, under some conditions at least, home-based reinforcement could be used to significantly improve the study behavior of a pre-delinquent from a foster home. When the youth took the daily report card and earned daily privileges his study was significantly higher than during baseline and reversal conditions. The high rates of study did not appear to wane in the full month that this condition was in effect. This great improvement appeared to be related to the fact that the teacher differentially marked the cards. When he fell below a certain level he was marked no and lost privileges at home. In a second class, the teacher did not differentially mark the cards and study behavior was not affected in the same consistent way. The median for the baseline was less than 20% study and jumped to over 75% during the daily report card condition so an improvement can be seen. But, with no further analysis these data are inconclusive.

The data from Exp. II showed that differential marking of cards by the teacher was in fact necessary for the home-based reinforcement to work. Study behavior improved and maintained and rule violations dropped when the teacher used a set of strict criteria to mark the youths' cards. As in Exp. I, when the back-up reinforcers were not made contingent on class behavior, study dropped and rule violations increased. Putting the contingency on study behavior and rule violations had two side effects. When study increased, output increased. When study dropped, output dropped, even though there were no contingencies in effect were considerably less disruptive than when there were no contingencies for good class behavior. In fact, the only rule violated under contingencies was the one which forbade

looking out the window.

The steady drop in accuracy of problems worked over the course of Exp. II may have been due to one of several factors. First the problems became more complex and involved more skills as the boys progressed through the workbooks. As they progressed the problems changed gradually from simply multiplication and division to long word problems, long division, the use of decimals, and the multiplication and division of fractions. Second, there was the possibility of cumulative error. That is, if a boy missed or misunderstood some concept early in the workbook, no remediation of his deficiency was undertaken so that if it was required as part of a larger repertoire later there was a greater chance that he would miss it. Finally, it may have been that high output was superstitiously maintained initially (i.e. when they did lots of problems they got marked yes) and was simply adapting over time to the real contingency, i.e. study-like behavior but not output. The contribution of each can not be known at this time and an analysis of this effect must await further experimentation.

The third experiment showed that remote or home-based control could be achieved with yet another subject in another public school class. In addition, it was shown that when the daily report card was faded to twice a week, that study dropped only slightly, from an average of 90% to 87%. Since a reversal was not carried out it is not known if this drop was due to the fading procedure or simply that study was slowly going down over time. These data do not show at what point in time fading could most optimally be begun or how seldom the card can be taken and still maintain good study behavior.

These results replicate the now classic study of Hall et al. (1968)

in demonstrating that study behavior can be modified in the classroom with children who are chronic behavior problems. The data also support and lend credence to the work of Cantrell et al. (1969) and Thorne et al. (1967) in which parents delivered consequences for their children's school behavior. Their studies showed that such systems were practical logistically and were acceptable to parents, but they presented no data to show the systematic effect of the contingencies on daily school behavior. The present research also corresponds to Cohen et al.'s (1967) finding that delinquents can be motivated to do well in academic settings. Finally, the data generate additional support for the Achievement Place model of a home-style, community-based facility for the rehabilitation of juvenile offenders.

This study strongly suggests that facilities such as Achievement Place could easily have a great impact on the school behavior of youths sent there without being a burden or imposition on the local school the boys attend. The system of home-based reinforcement requires only that teachers discriminate and mark study from non-study behavior. They do not have to change their behavior, take data, set up contingencies, dispense social or material reinforcers, or even be harsh with the youths. All other functions besides the discrimination of study are handled by the house-parents so that no extra personnel, funds, or training are necessary. The normal privileges available in any home are sufficient reinforcers and well trained house-parents can readily make these available for good school performance via the token economy.

One possible modification might even alleviate the teacher discrimination requirement. It is possible that the results seen here could as easily have been achieved if the contingencies were for output

instead of study behavior. Since teachers are already well trained at discriminating output performances, this could be used instead of the yes, no categories and perhaps with the same or better results. It seems logical that if contingencies are put on output, that rule violations will have to dropout and study and attention will have to increase. Further research to analyze this possibility is certainly required and would seem to be the next step for research in this area.

Home-based reinforcement in addition to being practical and effective for use in Achievement Place type settings, might also find a wider use with similar problem children in other situations. The remote reward system could easily be incorporated into existing state institutions for delinquents. Such institutions typically have their own schools on the grounds and many potential reinforcers such as gyms, canteens, T.V. rooms and so on. Tyler (1967) applied a remote reward system with an institutionalized delinquent and reported success in improving the boy's grades, but was not able to perform any experimental analyses or take correlated observations in the classroom.

McKenzie et al. (1968) found home-based reinforcement to be effective for children with learning disabilities. These parents of this type child and other children similarly labeled as "lazy", "unmotivated", or "underachiever" may also find a system of home-based reinforcement to be helpful in improving their children's academic skills. School counselors or psychologists might be trained in the use of such techniques and would be the natural professional to contact parents to propose such remedial reinforcement contingencies.

The application of these findings seem wide indeed, and it is forseen that home-based remote reinforcement will join the rapidly

growing list of techniques commonly used for the modification of deviant behavior.

REFERENCES

- Ayllon, T. and Azrin, N. H. The token economy. New York: Appleton-Century-Crofts, 1968
- Barrish, H. H., Saunders, M., and Wolf, M. M. Good behavior game: Effects of individual contingencies for group consequences on disruptive behavior in a classroom. Journal of Applied Behavior Analysis, 1969, 2, 119-124.
- Cantrell, R. P., Cantrell, M. L., Huddleston, C. M., and Woolridge, R. L. Contingency contracting with school problems. Journal of Applied Behavior Analysis, 1969, 2, 215-220.
- Cohen, H. L., Filipczak, J., and Bis, J. S. Case I: An initial study of contingencies applicable to special education. Silver Spring, Maryland: Educational Facility Press, 1967.
- Hall, R. V., Lund, D., and Jackson, D. Effects of teacher attention on study behavior. Journal of Applied Behavior Analysis, 1968, 1, 1-12.
- Hall, R. V., Panyan, M. Rabon, D., and Broden, M. Instructing beginning teachers in reinforcement procedures which improve classroom control. Journal of Applied Behavior Analysis, 1968, 1, 315-322.
- Homme, L. E., deBaca, P. C., Devine, J. V., Steinhorst, R., and Rickert, E. J. Use of the Premack principle in controlling the behavior of nursery school children. Journal of the Experimental Analysis of Behavior, 1963, 6, 544.
- Kennedy, R. F. Halfway houses pay off. Crime and Delinquency, 1964, 10, 1-7.

- Madsen, C. H., Becker, W. C., and Thomas, D. R. Rules, praise, and ignoring: elements of elementary classroom control. Journal of Applied Behavior Analysis, 1968, 1, 139-150.
- McKenzie, H. S., Clark, M., Wolf, M. M., Kothera, R., and Benson, C. Behavior modification of children with learning disabilities using grades as token reinforcers. Exceptional Children, 1968, 38, 745-752.
- McNeil, F. A halfway-house program for delinquents. Crime and Delinquency, 1967, 14, 538-544.
- Meichenbaum, D. H., Bowers, K. S., and Ross, R. R. Modification of classroom behavior on institutionalized female adolescent offenders. Behavior Research and Therapy, 1968, 6, 343-353.
- Montone, E. J. Walton Village: A Y.M.C.A. residential center for delinquent teenage boys. Federal Probation, 1967, 31, 27-32.
- O'Leary, K. D., Becker, W. C., Evans, M. B. and Saudargas, R. A. A token reinforcement program in a public school: a replication and systematic analysis. Journal of Applied Behavior Analysis, 1969, 2, 3-13.
- Osborne, J. G. Free-time as a reinforcer in the management of classroom behavior. Journal of Applied Behavior Analysis, 1969, 2, 113-118.
- Phillips, E. L. Achievement Place: Token reinforcement procedures in a home-style rehabilitation setting for "pre-delinquent" boys. Journal of Applied Behavior Analysis, 1969, 1, 213-223.
- Phillips, E. L., Bailey, J. S., and Wolf, M. M. Achievement Place: A token economy in a home-style rehabilitation program for juvenile offenders. Paper presented at the meeting of the American Psychological Association, Washington, D.C., Sept., 1969.

- Phillips, E. L. and Wolf, M. M. Modification of behavioral deficiencies in adolescents. Paper presented at the meeting of the American Psychological Association, San Francisco, Sept., 1968.
- Phillips, E. L., Wolf, M. M., Bailey, J. S., and Fixen, D. L. The Achievement Place Model: Community-based, family-style behavior modification programs for pre-delinquents. Paper presented to the California Youth Authority Delinquency Prevention Strategy conference, Santa Barbara, Feb., 1970.
- Surratt, P. R., Ulrich, R. E., and Hawkins, R. P. An elementary student as a behavior engineer. Journal of Applied Behavior Analysis, 1969, 2, 85-92.
- Thomas, D. R., Becker, W. C., and Armstrong, M. Production and elimination of disruptive classroom behavior by systematically varying teacher's behavior. Journal of Applied Behavior Analysis, 1968, 1, 35-45.
- Thorne, G. L., Tharp, R. G., and Wetzal, R. J. Behavior modification techniques: New tools for probation officers. Federal Probation, 1967, 31, 21-27.
- Twain, D. C. Current research related to crime and delinquency. Federal Probation, 1966, 30, 47-51.
- Tyler, V. O. Application of operant token reinforcement to academic performance of an institutionalized delinquent. Psychological Reports, 1967, 21, 249-260.
- Witherspoon, A. Foster home placement for juvenile delinquents. Federal Probation, 1966, 30, 48-52.

Wolf, M. M., Giles, D. K., and Hall, R. V. Experiments with token reinforcement in a remedial classroom. Behavior Research and Therapy, 1968, 6, 51-64.

APPENDIX:

PROBATION AS A TECHNIQUE FOR THE MODIFICATION
OF DELINQUENT BEHAVIOR

A review and analysis

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PROBATION AS A TECHNIQUE FOR THE MODIFICATION OF DELINQUENT BEHAVIOR

The behavior of many youths under 18 years presents a problem to people who run schools or stores, own homes, businesses, or automobiles, or to parents who are trying to raise such children. Truancy, larceny, breaking and entering, joy riding, and running away are just some of the acts that can result in a youth's being labeled "delinquent." Approximately half of the juveniles who are apprehended for these and some other illegal acts are referred to the Juvenile Court for handling.

The most frequent way that the Juvenile Court handles the young offender is to give him a warning and place him "on probation" and leave him in the community. Here, the youth is returned to his home where presumably he is under the guidance, care and supervision of his parents and a probation officer (P.O.). The P.O. is charged with seeing that the youth becomes a responsible citizen. The techniques used by the probation officer to achieve this end have evolved from a combination of backgrounds involving social casework, counseling, and psychotherapy.

An assumption of modern behavior theory is that the inappropriate behaviors to be corrected by the P.O. are functionally similar to more acceptable behaviors such as attending school, working at a part-time job, doing chores at home, and so on. That is, the behaviors are understood to be complex chains of learned responses, under some stimulus control and affected by contingencies in the physical and social environments. In recent years a science of behavior has emerged which has led to the experimental analysis of significant human behavior

(Ullmann and Krasner, 1966; Ulrich, Stachnik, and Mabry, 1967; Journal of Applied Behavior Analysis, 1968). This science, which stresses the longterm study of individual subjects, the manipulation of environmental variables, and direct measurement of the effects of this manipulation on observable behaviors, would appear to be suited for the analysis of the behavior problems presented by delinquents who need rehabilitation.

Early human applications of this science known as the Experimental Analysis of Behavior were directed at child behavior problems which were both severe and dramatic in nature and which had heretofore been unsuccessfully treated by traditional therapeutic procedures. The most stimulating of this initial work was carried out with autistic (Wolf, Risley, and Mees, 1964; Lovaas, Schaeffer, and Simmons, 1965), self-destructive (Tate and Baroff, 1966; Lovaas, et al., 1965), and retarded (Birnbrauer, Wolf, Kidder, and Tague, 1965) children. Other early work with adults included equally as dramatic demonstrations of the power of the techniques, for example the work with backward schizophrenics (Ayllon and Michael, 1959; Ayllon, 1962; Ayllon and Houghton, 1963).

Recently there has been a trend toward an analysis of some behavior problems which are important although less dramatic than those described above. These have centered on the behavior of nursery school children (Harris, Wolf, Baer, 1964; Hart, Reynolds, Baer, Brawley, and Harris, 1968; Bushell, Wrobel, and Michaels, 1968), elementary and remedial education students (Wolf, Giles, and Hall, 1968; Madsen, Becker, and Thomas, 1968), and, particularly important for this paper, delinquents (Phillips, 1968; Thorne, Tharp, and Wetzal, 1967; Cohen, Filipczak, and Bis, 1967). The interest in delinquents has probably

been sparked by the urgency of the problem they present (cf., President's Task Force on Juvenile Delinquency, 1966) and the subsequent amount of public support for research in this area.

The purpose of this paper is to suggest ways in which the techniques of behavior modification may be applied to probation to make it more effective. Before presenting this analysis, it will be necessary to put the problem of delinquency in perspective and to review the work which has been done thus far. To this end, the history of probation, a review of definitions of delinquency, and a description of typical judicial processes will be presented. This will be followed by a description of the size of the delinquency problem as estimated from current statistical surveys and an account of current probation practices and measures of their effectiveness. In the last section the operant research with delinquency will be reviewed and some suggestions for improving probation practices derived from that research will be presented.

The History of Probation

According to historical accounts, the misbehavior of minors always has been a problem. Specialized procedures for dealing with juvenile offenders apparently began about 1820 in England. Juvenile criminals were imprisoned for one day and then allowed a conditional release under the guidance of their parents or guardian (Tappan, 1960).

Massachusetts was the first state in this country to enact legislation especially designed for juveniles. An act passed in 1869 provided that an agent of the state would attempt to find a suitable home for youths convicted of a crime and to check on them occasionally to

determine their progress (Rosenheim, 1962). The first Juvenile Court was established in Cook County, Illinois in 1899 (Caldwell, 1961) and by 1933 all states with the exception of Wyoming had some form of provision for juvenile probation (Barnes and Teeter, 1955).

Definitions of Delinquency

With such a long history one might speculate that a definition of delinquent behavior would be clearly established. Such is not the case. "Delinquency" is a legal status (i.e., a delinquent is a minor adjudged delinquent by a juvenile court); thus there are effectively as many definitions of delinquency as there are different state juvenile codes and interpretations thereof. A delinquent act in one state might not be so considered in another, and vice versa. In general, juvenile codes have two broad divisions under which a minor may be considered delinquent. The first is that violation of any municipal, state, or federal laws by anyone under 18 years renders such an offender a delinquent (Tappan, 1949). This is not always the case, however, since in some states delinquents are only those minors who commit felonies (those who commit misdemeanors are then called miscreants; e.g., Kansas Juvenile Code, 1965).

A second major category for delinquent acts involves non-criminal behavior if it were performed by an adult. Such a distinction makes the juvenile a special case, in that if he were not a minor the act would not be illegal. The kinds of non-criminal behaviors included in this category are, "...one who deports himself as willfully to injure or endanger the morals or health of himself or others..." or "...who is incorrigible, ungovernable, or habitually disobediant and beyond

the control of his parents, guardian, or other lawful authority..." (Tappan, 1949). Once again, this type of behavior is not considered delinquent in all states. In Kansas, for example, a child committing those acts mentioned just above is considered "wayward," i.e., "...a wayward child is one whose behavior is injurious to his or her welfare, who has deserted home without cause, or who is disobedient to parents or guardian..." (Kansas Juvenile Code, 1965, Ch. 278, Sect. 1). Other categories of delinquent behavior are obviously held over from earlier times and present a quaint reflection on the problems of unruly youths. These ranged from "patronizing a saloon or dram house where intoxicating liquor is sold" to "begging or receiving alms in the streets" (Rubin, 1949).

The problems involved with delinquency, then, begin with the definition of the persons and behaviors involved. A delinquent could be as young as 7 or as old as 21 (Crime and Delinquency, 1967, p. 55), and may have committed anything from truancy to homicide. The statistics on the volume of delinquency must be considered in this light, i.e., that delinquency is not a uniform phenomenon and that attempts to quantify it therefore must be examined cautiously.

Typical Judicial Processes

In order to appreciate the complexity of the problems involved in dealing with juveniles in the courts and in treatment it may be helpful to characterize the typical judicial procedures which are undertaken with accused youths. The legal procedures are divided into two major parts: adjudication and disposition. In adjudication the youth is brought before the judge, is represented by counsel, and is accused via

petition by the interested party (usually a probation officer) of committing some delinquent act. The juvenile has all the rights of due process, cross examination and protection against self-incrimination. The prosecution proceeds to present evidence and witnesses and the juvenile's counsel may make objections and cross examine a witness regarding his testimony. After hearing all the evidence the judge will make his decision and either declare the child a delinquent or dismiss the case. In about 80% of the cases the accused youth is declared delinquent (Eaton and Polk, 1961) and the hearing to determine disposition begins.

In the hearing to determine disposition, the judge is usually more informal and may allow less rigorous evidence to be entered. He may question the parents about their handling of and relation to the youth and may ask the youth himself to describe his situation. In addition, a probation officer who has investigated the case and brought the petition alleging the act will be asked to present any other evidence which may help the court to decide how best to help the juvenile. The probation officer may describe how the parents acted during the pre-hearing interview and impressions he got of the youth in discussing the delinquent act with him. Finally, the probation officer may suggest or recommend a disposition of the case which in his estimation will best serve the interests and welfare of the child. Probation as a disposition typically is granted in 39% to 68% (Bloch and Flynn, 1956) of the cases heard in juvenile court depending on the state.

The Incidence of Delinquency

The Children's Bureau of the U.S. Department of Health, Education,

and Welfare is charged with coordinating statistics on delinquency. It acts as a central clearing house for data from the entire country, and with this data it attempts to estimate the current trends in delinquency. The latest statistics indicate that 2.3% of the children in the age range from 10-17 were referred to the juvenile court for acts of delinquency. This may not seem high, but if the per cent of all children in the same age range who have ever been referred to juvenile court is calculated, it amounts to 12% (Perlman, 1960). Statistics for 1964 indicated that 18% of all boys were referred to the juvenile court for delinquent acts during their adolescence.

Another source of information on delinquency is the F.B.I. Uniform Crime Report which is issued annually. For 1967 the statistics indicate that recorded arrests of juveniles for serious crimes increased 59% in the period 1960-1967, while the number of persons in this age group (10 to 17) increased only 22%.

Furthermore, of all crimes committed in 1967, 38.1% were by those under 18 years. Over half of all the auto thefts and 44% of all larceny were committed by someone under 18 (Hoover, 1967). Statistics such as these may be distorted by many factors which are not directly related to an increase in juvenile delinquency. Such factors as the increasing size of our population under 18, a possibly more vague and inclusive definition of delinquency, and more efficient methods for apprehending juveniles are commonly cited. These and other criticisms have been reviewed and carefully analyzed by delinquency specialists (Teeters and Matza, 1959). The authors conclude, "For the years between 1940 and 1957 our belief is that although the official statistics perhaps overrate the increases in delinquency rates, there has,

nevertheless, been some real increase." (Teeters and Matza, 1959, p. 42). These statistics are presented, then, not necessarily to show that delinquency is increasing at an alarming rate but rather that it already exists at a level which warrants concern and at least shows no sign of abating.

Procedures in Probation

There is rather clear agreement as to the legal status of probation as a tool of the court. For example, "Probation is the status of a convicted offender during a period of suspension of the sentence in which he is given liberty conditioned on his good behavior and in which the state by personal supervision attempts to assist him to maintain good behavior." (Southerland and Cressey, 1966). This is little changed from a much older definition, in which probation was, "The suspension of final judgment in a case, giving the offender an opportunity to improve his conduct while living as a member of the community, subject to conditions which may be imposed by the court and under the supervision and friendly guidance of a probation officer." (Johnson, 1928). Almost identical definitions are offered by Dressler (1959) and the National Association on Crime and Delinquency (1967). Thus, there appears to be a consensus about what probation should be, at least. These definitions all stress two facts: (1) that the prime goal of probation is the improvement in behavior of the probationer and (2) that this process is to be facilitated by another person (the probation officer). We see in this some assumptions underlying the philosophy of probation. First it is assumed that the juvenile's behavior can be changed, i.e., he is not considered innately or irreconcilably bad or

evil. Second, the responsibility for the change in behavior does not reside solely within the probationer; some outside force may effect or at least facilitate the change in behavior. These are critical assumptions for the analysis which will come later.

Probation in Practice

How does the probation officer actually go about changing the behavior of the delinquent in his charge? Little is known about the process since probation officers often work in the field at irregular hours, have no clear-cut set of procedures to follow in each case, and are not closely monitored. Descriptions of procedures involved range from "...gaining the confidence and friendship of the young man.." and "...stimulating the probationer's self-respect, ambition, and thrift.." (Sutherland and Cressey, 1966) to "...establishing a meaningful client-centered relationship with the youth..." (Newman, 1962). It is difficult, of course, to determine what each of these descriptions means. At best they are open to interpretation and at worst they leave no possibility for quantification or objective description of the procedures.

Other descriptions of the procedures are a little more clear and may be more helpful. Dressler (1959), for example, states, "Fundamentally, there are two approaches to case work treatment in probation and parole. The environment may be manipulated in the interest of the individual; and the individual may be treated so that he may more effectively cope with his environment." Dressler observed four general techniques being used by probation officers: (1) manipulative, (2) executive, (3) guidance, and (4) counseling. "Manipulative" techniques

involved getting the probationer a job or onto welfare or into better housing or a better neighborhood. "Executive" skill most frequently involved referring the probationer to other social welfare agencies. General giving of advice and information was considered "Guidance"; and "dealing with problems of deep-seated emotions" was included as the important "Counseling" skill (Dressler, 1959).

Although these examples provide more information about the processes involved, we are still little closer to a quantification of the procedures included. An approximation to this is presented by Diana (1960). He undertook to survey the actual practices of probation officers to determine how closely they engaged in procedures for the rehabilitation of delinquents. His questionnaire data showed that in general there was very little contact with probationers, and that probation officers, more often than not, did no planning for the cases they had. Overall, 65% of those questioned had fewer than six contacts during the average probation period, with any given case. Eighty-four percent paid only one home visit to a child and 78% of probationers had only one office interview with their probation officer during an average probation period (16.5 months).

In addition, one-half of the probation officers stated that they had done no planning for any of their cases (Diana, 1960).

In further investigating the duties of the probation officer, Diana found that they spend from 3 1/2 to 4 1/2 days a week in administration and its details (getting statements from complainants, compiling a personal history of the offender, making appointments for testing, etc.). It thus appeared that probation officers in actuality spent very little time in personal contact with probationers. It is

difficult to generalize from this investigation to the whole field of probation, but a thorough review of the relevant literature reveals no other account of the probation officer's manner of dealing with delinquents. One obvious solution might be to reduce the case load of the probation officers. However, there is evidence to suggest that this in itself has little effect on the recidivism rate of probationers (Newman, 1962; Lemert, 1967).

Unfortunately, then, there is little to conclude about the actual process of probation since an attempt at quantification has only just begun. We have not advanced very far from an early assessment of the situation in which it was stated, "Probation is a term that gives no clue to what is done by way of treatment; it may, on the one hand, be a name representing merely non-commitment of the offender, or at the opposite extreme, it may be the occasion of the delinquent receiving extraordinary personal attention and corrective help." (Healy and Bronner, 1926).

Measures of the Effectiveness of Probation

If it is not possible to quantify or measure the probation process, is it then possible to determine how effective it is? In order to answer this question we must first discuss the various possible measures of success or failure for a probationer. There is only an indirect measure of successful probation, i.e., the uppermost concern of the court is that the juvenile not repeat the delinquent act. As long as he does not come to the attention of the court again, a probationer will be considered a success, i.e., he is not a failure. How severe a problem does he have to be to be considered a failure? There

is a continuum of misbehaviors, ranging from missing appointments with the probation officer and violating probation orders to committing a criminal act, which could be considered as failures of probation to help the individual. The action of the court in any one such case might range from a reprimand to re-arrest on a new charge (Vasoli, 1967).

Other alternatives that have been suggested for a measure of the effectiveness of treatment programs are the subjective opinions of the workers, approximate changes in intermediate goals, and how well a program was carried out regardless of the outcome (Hackler, 1967). These measures present obvious problems in that those who have participated may "feel" that they have done some good, even when no other measures of success can be obtained. Finding a delinquent a job or getting him back in school may appear to be a partial success, but if he continues to commit illegal acts, such gains are presumably discounted. Finally, evaluating how well a program was executed may be an extremely difficult task on which to get agreement.

The most commonly used measure of probation effectiveness is recidivism, i.e., whether or not the juvenile commits further delinquent acts (Eaton and Polk, 1961). As long as the definitions of crimes remain the same and as long as detection and enforcement practices remain unchanged, rate of re-arrest should be a relatively stable measure. Recidivism has the advantage of being defined by the regularized legal processes described and probably come closest to measuring what laymen mean by failure, i.e., further commission of crime. However, there are problems with this measure which should be mentioned. First, since it is a negative measure, an imprecise

searching of records on offenders may show an inflated success rate. Further, if a juvenile offender moves from one county or state to another and is arrested for a crime, he will likely not be called recidivist, since in that jurisdiction he is a first offender. In addition, in some states it is a practice not to apply the label "recidivist" to those juveniles currently on probation. Thus, if a juvenile offender commits an act while under supervision it is likely that he will simply be kept on probation longer (Eaton and Polk, 1961).

Studies of Effectiveness of Probation

Studies of the effectiveness of probation in reducing subsequent delinquency fall generally into two categories: local, short-term surveys by individual juvenile courts; or extensive, long-term studies by scientific researchers. There have been many small studies done, but copies of the original reports are not readily obtainable. These studies generally cite recidivism rates ranging from 11% to 50% from 1 to 8 years (non-respectively) after probation (Schreiber, 1960). As we shall see, this is considerably less than the more thorough and detailed studies for which the original data are obtainable.

One of the earliest thorough studies was done with the Boston Juvenile Court (Beard, 1934). That research followed 500 delinquents (400 boys and 100 girls) who had been placed on probation starting January 1, 1924 and referred to the Bain Foundation Clinic. Beard obtained information on the outcome of the probation treatment by reviewing court records and the files of the Massachusetts Probation Commission, and by interviewing the families of the children starting January 1, 1929, thus providing a five-year follow-up. Sixty-one per

cent of the children were returned to the court for delinquencies after being placed on probation, and 55% of the boys were counted as recidivist. Only 43% of those placed on probation refrained from committing detectable delinquent acts during the five-year period.

The treatment conducted by the probation officers was "...concerned chiefly with five major phases of the child's life: (1) his home situation -- the place and conditions under which he lives (2) his physical and mental health; (3) the use of leisure time -- his companions and recreational activities; (4) his education; (5) his experience in earning a livelihood." (Beard, 1934, p. 153). The author made an attempt to quantify the degree to which specific recommendations were made and carried out (e.g., 48% of the recommendations for improvement in the quality of boys' recreation were carried out), but the precise relation between this and the overall failure of the program to reduce delinquency significantly in an absolute sense was not discussed. In addition, no comparative data are presented showing the amount of recidivism of those youths for whom no probation was prescribed or for those who were sent to institutions.

Perhaps the most elaborate and complete follow-up done on the effectiveness of probation was completed in 1940 (Juvenile Delinquents Grown up, Glueck and Glueck) as a follow-up to an earlier study (One Thousand Delinquents, Glueck and Glueck, 1934), again in the Boston Juvenile Court. The status of each of the original 1000 who were seen by the clinic in the period 1917 to 1922 was determined five, ten, and fifteen years afterward to determine the effectiveness of the various treatments recommended by the juvenile court. For 66% of the boys, the treatment consisted of the youth's being placed on probation in the

home (Glueck and Glueck, 1934). Although we are not given a break-down by various dispositions we may assume from the fact that over 85% of the delinquents were re-arrested in the five-year period that the probation treatment was not entirely helpful. Once they were apprehended again, of course, we can no longer attribute particular effects to the initial probation, since only 17% were placed on probation a second time by the court. The fact that 66% had been arrested in the second five-year period does suggest, however, that no treatment among those to which it was applied was very successful in reducing the criminal tendencies of the youths (whose average age was then 24 years).

No more recent studies as comprehensive as these could be found in the delinquency literature. A recent text in the area ventures to state that no further studies have been made (Sutherland and Cressey, 1966).

The evidence for the usefulness of probation as a treatment technique then is meager and the most comprehensive studies (although not recent) do not show it to have a particularly dramatic effect on the delinquent behaviors of youths.

In recent delinquency treatment, there has emerged a search for new techniques. Some suggestions which have been made appear strikingly close to a behavior modification approach. Keve, in Imaginative Programming in Probation and Parole (1967), suggests the use of "rewards and punishments" to encourage delinquents to achieve desirable goals. He states that "...behavior can be modified by causing some kind of discomfort every time unwanted behavior occurs." He also goes on to say that many of our delinquents need first to be provided with opportunities to be non-delinquent, and then have appropriate systems

of rewards for improved behavior devised for them. Institutions, too, are beginning to describe methods of controlling delinquent behavior, using different consequences for desirable and undesirable behavior. In one program for severely disturbed delinquents, a "reality therapy" approach is used, in which a boy is "held responsible" for his behavior -- which means that he must accept the consequences of that behavior. In addition, "...almost all privileges are based on acceptable behavior and are tangible recognition of staff awareness of improved behavior.." (Kane, 1966). The use of aversive consequences for the control of delinquent behavior has perhaps found its widest use by Judge Lester Loble in Helena, Montana. As a matter of course all juvenile felony cases in his district result in a thirty-day sentence in the state penitentiary. He claims, as a result, that there has been a 49% decrease in felony cases in the past three years (Loble and Wylie, 1967).

Such examples of the use of consequence manipulation for the control of delinquent behavior are rare in probation literature, but they suggest that workers in the field may be amenable to an approach which stresses this aspect.

Before proceeding to a behavioral analysis of delinquency it will be necessary to review that research with delinquents upon which several of the recommendations will be based.

Behavior Modification Research with Delinquents

Stated most broadly, behavior modification is a field of psychology which studies the relationship between behavior and its determinants. Its aim is the development of methods and techniques for the analysis and eventual modification in those behaviors which are deemed to be

problems by society. It is essentially experimental in nature, in that variables responsible for some behavior are not simply described but rather are manipulated in order to show their functional relation to the behavior being studied. In order to determine precisely whether some variable is responsible for producing some behavior, objective measurements of the behavior and the variables are required and the necessary control procedures must be run. As a result only observable behaviors are dealt with rather than intervening variables and hypothetical constructs (such as ego, body image, and awareness).

Some exploratory research with delinquents has been done within the framework of behavior modification. These studies fall into four general categories of settings in which delinquents have been observed and some attempt at modification of their behavior has been made: on the street corner; in academic settings; in institutions; and in homes or half-way houses. These studies will be reviewed next.

Street Corner Research

The earliest behavior modification research with delinquents was done by Schwitzgebel (1960, 1964a) on the street corners where he found them. He began by paying delinquents for their cooperation in a research project. He subsequently obtained a store front in a respectable business area in Cambridge, Massachusetts and began recruiting local delinquents to "talk into a tape recorder." The boys were initially contacted in their own neighborhoods and the project described to them. At first they had only to accompany the experimenter to the store in order to obtain the money, snacks, and praise. The subjects were then met successively closer to the experimental setting until they were attending on

their own. Contingencies were gradually added for their being on time until the delinquents were arriving regularly for their appointments. Once they were attending regularly, they were interviewed by graduate students from several different orientations and in general were encouraged to describe themselves, their ambitions, and their problems, in detail.

Many apparently irrelevant projects were undertaken with the delinquents, such as having them write a programmed drivers' manual, make movies showing their gang activities, and put together electronics components. There was no attempt to directly manipulate the delinquent behaviors of the subjects. The data which Schwitzgebel presented were strictly correlational.

Three years after the research project, the 30 subjects were compared on their rates of crime with a control group of 30 delinquents matched for age at first offense, nationality, type of offense, city of residence, and time spent in reform school. During the course of the project, experimental group members had an average of 2.4 arrests compared with the control group who had 4.7 (statistically significant at $p < .025$) over the same period of time. There was also a small but significant difference in the number of months of incarceration between the two groups. The experimental group had an average of 3.5 months vs. the control who spent an average of 6.9 months in some form of detention. It should be noted that the two groups were not necessarily equivalent. That is, the experimental group was chosen partly on the fact that they would come with the experimenter to the store, whereas the control group was simply matched along certain dimensions. Finally, delinquents who had a student interviewer who used an "unorthodox"

approach had a lesser number of months of incarceration than the interviewers who adopted a more "orthodox" technique. The dimensions along which the interviewers were supposed to be different are not made clear, however. The results of this study may be taken as suggestive of some variables which may be effective in working with delinquents rather than conclusive evidence for the techniques used, whatever they were. It at least suggests that chronic delinquents can be taught to be prompt and regular in meeting appointments, using only money, subway tokens, snacks, and praise as reinforcers.

Applications to Academic Settings

Since delinquents are almost certainly habitual truants from school and do poorly when they are there (Bloch and Flynn, 1956, p. 200), methods of improving their school-related behavior have been sought. Tyler (1967) arranged to have a boy, who had been labeled "incorrigible and defiant" by the teachers in a training school, put into a token reinforcement system. The youth brought a note to the experimenter from each class each day indicating how well he had done and was given a number of poker chips for various grades. The boy normally would have to sleep on a mat and wear the institution uniform but the chips could be spent on renting a mattress for the night and on civilian clothes. Tyler showed that the boy's grades improved by a grade and a half, on the average. Since no reversals or other manipulations were performed, the results await replication.

A further attempt at obtaining control over academic behavior of delinquents in an institution was made by Tyler and Brown (1968). Teachers prepared ten true-false questions from a regular evening newscast

and gave these tests to the delinquents the next day in class. When they returned to their cottage after school, one group was given tokens contingent on the number of right answers and the other group was given tokens noncontingently. In a later phase the two groups were reversed with respect to contingent token reinforcement. The group receiving contingent tokens performed only slightly better (i.e., about one-half an answer) in both conditions but the differences were statistically significant ($p < .0125$). I would tend to concur with the author's conclusion that "...the practical educational significance appears limited at this point." (Tyler and Brown, 1968, p. 167).

A slightly more significant application of operant techniques to an academic problem was made by Meichenbaum, Bowers, and Ross (1968). Observations of the classroom behavior of ten institutionalized delinquent girls were made and their behavior recorded in a dichotomous manner as either "appropriate" or "inappropriate" (i.e., the latter was defined as behavior not conducive to academic performance, and the former was marked when "inappropriate" was not). Following a five-day operant level in both morning and afternoon classes, the girls were given a slip of paper every ten minutes in the afternoon class indicating the number of tokens they had earned for each appropriate behavior. (The tokens could be traded for money at the end of the day). No such feedback was given in the morning class. Following a multiple baseline design the girls were also given slips in the morning indicating that they had earned money for appropriate behavior after two weeks. This condition lasted three days for four of the girls, and four days for the other six. In the last condition the girls could also lose money for inappropriate behavior although they could not go into debt. The

data were presented as means for the two classes of girls and showed fairly large improvements in appropriate behavior (e.g., from 50% up to 80% appropriate) when money was paid for appropriate behavior. There seemed to be little difference when the girls could lose points for inappropriate behavior as well. However, in the tabled data for individual subjects it appeared that complete control over individual subjects was not obtained. On the final day of the last phase, for example, six of ten girls had inappropriate behavior in either the morning or afternoon which was equal to or worse than their operant level. The mean data were boosted by the remaining girls showing almost 100% appropriate behavior. This study, then, suggests that some control over some delinquents' behavior may be obtained, but more data are certainly needed before this generalization could be made with confidence.

Martin, Burkholder, Rosenthal, Tharp, and Thorne (1968) developed a complete academic program in which delinquents who had been suspended from regular school were treated in a setting separate from the school. The school system consisted of five phases from Preliminary to Post-graduate, each of which required that increasingly more work be done and less disruptive behavior occur in order for a variety of reinforcers to be delivered. Rewards ranged from canteen points and teacher attention to a full banquet for passing from one phase to another. Observations of classroom behavior were made from a one-way window adjoining the class and were taken at 30-second intervals twenty minutes a day for each of five delinquents. Data presented show that work behavior increased steadily through the phases and that disruptive behaviors were almost eliminated by the last phase. A follow-up of the students

the year after the intensive program showed all but one (who dropped out of school) to be successfully participating (at least part time) in regular secondary schools. No data were presented on comparable delinquents who received no such treatment. It is difficult to estimate what might have been the outcome had the children not been placed in the Phase program.

Probably the most elaborate study on academic behavior of delinquents was carried out at the National Training School for Boys (Cohen, Filipczak, and Bis, 1967). The 16 boys came to the project daily for three and a quarter hours and attended classes, worked on programmed instructional materials, studied, and took tests. The unique feature, however, was that they earned points for their academic achievement which could be spent on leisure time activities, snacks, items from a mail-order catalog, and private study cubicles. Each boy's progress was closely monitored by the staff and constant feedback in the form of points, remedial programs, and supplementary tutoring was provided. Data presented show the changes in academic skills over the nine-month period that the boys attended the project. Even though all the boys had been public school drop-outs (some had even been dropped from the Training School education program), they had an average gain of almost a full grade level as measured by the Gates Reading Survey and the Test of General Abilities. In addition, there was an average gain of 2.7 on the Stanford Achievement Test for this group in nine months. This project involved none of the controls used in typical experimental designs and therefore the contribution rests on the improvements shown on the standardized tests. One cannot be sure that control subjects not treated would not have done as well, but it seems very

unlikely given the background and history of the subjects studied.

One final study (Staats and Butterfield, 1965) demonstrates the feasibility of non-professionals effecting remedial education in a chronic delinquent. Their project consisted of adapting Staats' reading program to a 14-year old delinquent boy. The boy was given tokens that could be exchanged for money or goods for performing satisfactorily on vocabulary training, oral reading, and silent reading and comprehensive questions. The boy participated for 4 1/2 months and was given standardized reading tests before, during, and after the training sessions to assess its effects. The majority of the data presented show acquisition curves for the reading skills. In addition, the standardized tests showed that the subject had gained 2.3 grade levels in reading in 4 1/2 months (he was at 2.0 grade level after 8 1/2 years of public school). The subject also passed all his courses in school for the first time and had many fewer misbehaviors in school during the course of the study. Since comparison data for other delinquents are not presented we cannot be sure how much of the improvement to attribute to Staats' reading program and the passing grades and fewer misbehaviors in school are not so easily attributed to learning to read since the appropriate controls were not run. Further research is needed to determine if the primary and side effects reported reliably result from such a reading program.

Applications in Institutional Settings

Perhaps because institutions for delinquents are tightly regimented and highly structured, behavior problems that cannot be controlled using strictly common sense aversive controls rarely occur, and little

operant research has been done in these settings. Two studies that have been carried out in institutions both involve the control of disruptive behaviors seemingly not affected by traditional aversive control methods.

Burchard and Tyler (1965) attempted to reduce the severe "destructive and disruptive behavior" of a 13 year old boy in a training school by putting him in an isolation room for three hours contingent on each display of "unacceptable" behavior. In addition, the subject was given poker chips for each hour that passed without his engaging in appropriate behavior. Chips could be exchanged for edibles in the canteen three times a week and daily for recreational activities. The results of their study are limited to showing the number of times the boy was placed in isolation per month. During the first month he was placed in isolation 18 times and in the fifth month only 12 times. However, since no baseline of disruptive behavior was taken, we cannot be sure that this represents a significant reduction. The study also limits the conclusions one can draw since no independent observations of the behaviors were made and no experimental manipulations were performed.

Tyler and Brown (1967) have also used time-out as a control technique with institutionalized delinquents. The staff of one cottage was concerned over the amount of undesirable behavior associated with playing pool in the activity room (including kibitzing, arguing, scuffling, and fighting). Rather than take a baseline of these behaviors, the experimenters began by placing any offender in a 4' by 8' time-out room located in a corner of the activity room for fifteen minutes for each offense. After seven weeks, this punishment procedure was dropped for about three months and then the time-out was instituted again.

Individual cumulative records of the number of offenses for all boys show that the number of offenses was greatly reduced by the time-out procedure. This study suffers from the lack of objective definitions of the misbehavior and reliability checks on the definitions. Otherwise the procedure appears clearcut and the results are of a significant magnitude.

Applications in Home Settings

The work with possibly the closest applicability to probation treatment is that done in the home or foster home setting. Two such studies with delinquents have been reported to date.

Phillips (1968) established a half-way house for "pre-delinquents" in which a token system for the reinforcement of acceptable behaviors was established. The boys earned tokens (points) by engaging in a variety of activities in the home, school, and community, and exchanged the points for privileges in the home such as snacks, T.V., allowance, permission to go outside, avoid doing the dishes, and so on. Data have been taken on a number of apparent components of delinquent behaviors including aggressive statements, self-care, punctuality, completion of homework, and correct grammar. Behaviors to be treated were either defined behaviorally with independent observers and reliability checks made (e.g., "aggressive" statements) or by measuring the effects of the behavior on the environment (e.g., bathroom cleaning). Since the project is largely concerned with research, the experimental designs used permit an evaluation of the effects of the token system. With all of the target behaviors mentioned above it has been demonstrated that this type of reinforcement can be effective

in reducing delinquent behaviors and shaping or establishing non-delinquent repertoires. Since the boys have not been returned to their normal homes as yet it is not certain that giving these boys appropriate behavioral repertoires will necessarily reduce their delinquencies once they are returned to the community from which they came. It is interesting to know, however, that at least behaviors which appear to be related to delinquency can be measured and controlled in a home-style setting using naturally available reinforcers.

A further application of operant techniques to controlling delinquent behaviors has been carried out using parents as behavior modifiers (Thorne, Tharp, and Wetzell, 1967). Subprofessionals (called Behavior Analysts) made contacts with the parents and served as intermediaries between them and the consultants who supervised the project. The project operated on referrals from the community, schools, mental health clinics, and the Juvenile Court. Cases dealt with such delinquent behaviors as truancy, incorrigibility, destructiveness, stealing, setting fires, and open defiance of parents. Typically, the Behavior Analysts would meet with the parents to discover exactly what behaviors constituted the problem and with what frequency they occurred. They also attempted to find out what the normal consequences of the various behaviors were. Following this, intervention plans which the parents and children, agreed to in writing, were put into effect. To eliminate truancy, for example, a mother agreed to allow her daughter telephone privileges each day that the girl attended school. For bringing home a note four days a week saying she had been in school, she earned the privilege of one weekend date and for five notes, two weekend dates were permitted. School records showed that the girl was

truant 65% of the time before intervention but only 6% during the three months of the intervention program.

In another case, acts of destruction around the home were eliminated by giving a daily allowance for non-destructive behavior and having the parents praise their boy for studying. Previously, they had attended to him only when he destroyed something or had a temper tantrum.

Habitual fire setting by a 14-year old boy was eliminated by giving him a gold star on a chart for each day he refrained from playing with matches. In addition, for each day that passed without the matches playing behavior the boy earned the privilege of watching T.V. that night. If he received 5 stars in the week, he earned a quarter on the weekend. Playing with matches resulted in the loss of all these rewards. The father reported fire setting to be reduced from several times per week to one incident in six months after the intervention plan was begun.

The data presented in this study are not as rigorous as one might like (i.e., no reliability checks or reversals). However, no other work of this sort has been done and any new techniques that appear promising in the area of delinquency prevention are welcome. This approach appears particularly favorable since it requires little time on the part of the professional staff, very little special training, no expenditure for equipment, and uses the parents as modifiers. One critical requirement is the cooperation of the parents. Since in this study participation was essentially voluntary, success with this method may be restricted to those parents who would be willing to participate fully.

SUMMARY

These studies which attempt to apply the techniques of behavior modification to the rehabilitation of delinquents have many shortcomings. Few deal directly with "delinquent" behaviors (i.e., theft, assault, vandalism, etc.), the definition of the behaviors that were dealt with are usually fuzzy and are not supported by reliability checks, and reversals or other controls are not always used. Comparison with control groups of equal but untreated delinquents is rarely offered and follow-up on effectiveness over time with those treated is unheard of.

Clearly this research is in its infancy and more work is urgently needed if techniques for the modification of delinquent behavior is to be found. From the standpoint of prevention, the programs involving treatment in the "natural environment" (i.e., normal homes or foster homes and schools) appear the most promising since the problems are dealt with in the community where they originated and where they are likely maintained. These settings also provide the opportunity to observe and measure behaviors which accompany delinquent behaviors and, since they occur at a higher frequency, are more amenable to treatment. It may be possible in these settings to train those who contact delinquents in the appropriate techniques for behavior control. If this can be done, prevention of delinquency may be at least approximated.

The techniques used with delinquents are little different from those used with nursery school children or retardates. DRO, time-out, shaping, punishment, point costs, and behavior contracts have all been used. The advantages of some over others is impossible to evaluate at

this point due to the scarcity of solid research. Reinforcers used have included money, snacks, praise, subway tokens, and privileges. Time-out from peer social interaction and loss of privileges have been used to suppress unwanted behavior.

Perhaps the most significant problem in dealing with this population is the complexity of the behaviors encountered. The variables responsible for truancy or joy riding are probably to be found not only in the youth's past history (much longer and therefore more significant than for, say, a retardate), but also in current contingencies (largely peer mediated and therefore hard to control). Parents can reinforce many more misbehaviors in 12 or 13 years than they can in three or four years and they can do so on a much more intermittent schedule. They can also model inappropriate behavior and favorably describe it so that it becomes much more likely. The physical size of an adolescent and his ability to leave or avoid potential contingencies (which nursery schoolers or retardates cannot do) also complicates the issue. Extrapolating from the questionable experimental data to suggest techniques for the modification of delinquent behaviors is, then, tenuous at best.

An Operant Analysis of Delinquency

The delinquent typically has many behavior problems apart from the actual commission of a given act which brought him to the attention of the court. These inappropriate behaviors often are maintained (it seems) almost deliberately through social reinforcers administered by the delinquent's peer group and inadvertently by parents and other adults, as if they were following a program designed to create a delinquent child. I should like to describe some of the more obvious

examples of this "mis-programming" by the social environment which I believe is largely responsible for the behavior of the delinquents I have worked with as a Probation Officer for the Douglas County Juvenile Court.

School

The typical junior high school is very much like a miniature of the world in which the delinquent will later be required to operate. He must be there at a set time, work diligently with little guidance on tasks he sees as irrelevant to please someone he does not particularly care for. The rules appear to be arbitrary and the only immediate consequence is avoiding punishment. Further, the definitions of some appropriate behaviors change with the ring of a bell but also may change without warning at the whim of a moody teacher. With all of these similarities to the adult world on a scaled down basis, it seems natural that those children who cannot adapt to the school environment cannot cope with the world beyond the classroom.

Most delinquents do not prepare themselves for school even to the extent of having the appropriate books, paper, and writing instruments. Their teachers say they are "forgetful" and send them back to their lockers for the necessary items. The fact that this is almost a daily ritual is considered only indicative of the nature of the delinquent's problem. The delinquent child spends a good deal of his time responding to irrelevant aspects of his environment and in emitting behavior which has a high probability of being reinforced by his peers. He will stare fixedly out the window in his classes when he should be reading or listening to a class discussion. He will make comments likely to

result in laughter or snickers by other students. If given an assignment to complete he will doodle over it for extended periods. Since he does not have the complex reading, writing, and mathematical repertoires with which to respond appropriately, he may not respond at all. If a teacher happens by (most do not since they have never been reinforced for giving extra help) he may try to appear appropriately busy.

Home

The parents of a delinquent child invariably claim that he will not mind them or do what they want. He stays away from home as much as possible and when he is there he is likely to be arguing with one of his parents about something he should or should not be doing. In working with such parents it seems that they have no notion of behavior control by consequence manipulation. When I suggested to one mother, who had complained to me for over an hour about how she had tried to get her boy to do his homework, that she hold up his dinner until it was done she was taken aback. "Why, I couldn't do that, my boys have to eat no matter what!" The well nourished delinquent sitting beside her nodded in agreement at this truism.

Probably the biggest error that is made by parents is their failure to use any positive reinforcers for appropriate behaviors. If a boy does do something right nothing is said. It is "expected" by the parents even though it rarely occurs. Nagging and the threat of punishment (intermittently but severely carried out) are the most common form of attempted behavior control. A mother will nag at a boy one minute to clean up his room or help with the dishes and the next minute allow him to go outside before finishing, "Just to get him out of my

hair." Other privileges such as riding his bike, driving the car, using the phone, watching T.V. or getting an allowance are not given contingent on desirable behavior. In fact, these privileges are given most frequently for nagging, complaining, or arguing for successively longer periods. As a result, most parents are at best neutral stimuli and at worst conditioned punishers. They can ill afford to miss the opportunity to pair themselves with reinforcement but they invariably do, even to the extent of arguing and fighting at mealtime. Since the parents are not discriminative for reinforcement and do not pair themselves with available reinforcers it is little wonder that they are not admired, respected, or adored by their unruly offspring.

In addition, the parents of delinquents make a ready use of aversive control but almost invariably mismanage it. The punishers are potentially long and severe (e.g., "You can't have a date for three weeks." or "That will cost you a month's allowance.") but usually can be avoided in various ways. Most delinquents are shaped into being "con artists" by just such a program of negative reinforcement for whining, pleading, and making excuses for various aspects of their misbehavior. This repertoire which is shaped at home then becomes well enough developed to work with adults in many other settings. The most common example is the fact that teachers and employers state that the delinquent is always making excuses for being late, not doing a job well or not getting along with the other students or employees.

Peer Interactions

I have not had the opportunity to observe directly these delinquents with their peers but from their descriptions, the peers must

must control most of their social behaviors. Delinquents want very much to be considered "in" and part of the group. Since they do not have the behavior repertoires required by non-delinquents for admission to their groups they fall prey to control by other youngsters who are outcast like themselves. The fact that they are so vulnerable to this form of social control contributes to their proneness to "go along with the gang" regardless of the type of activity. Coming from similar backgrounds, they are in a position to reinforce each other for describing how bad the world has been to them, how rotten parents, and adults in general are, and in devising ways of getting even for all the injustices.

To complete the description of the typical delinquent repertoire, I should like to describe some of the highlights in the typical day of a mid-western delinquent as gleaned from interviews with him and his associates.

Danny is a gawky 15 year old who lives with his mother, alcoholic father, and six siblings in a dilapidated house in a poor section of a small town. He has come to the attention of the court for stealing a car and taking his friends for a "joy ride."

His day begins with his mother trying to get him up for school; he does so reluctantly because he was out until after midnight the night before, riding around town with "the gang." His mother nags at him for not straightening up his room or doing his homework and tells him that he cannot go out for the next week for being so irresponsible. Danny has learned to be silent when she is like this and so ignores her and reluctantly gets dressed for school. As he finishes the last bit of his breakfast a car honks outside. His mother gives him his

lunch money and warns him not to spend it on candy, like he usually does. He has a part time job but his mother feels that he should be able to spend the money he makes any way he pleases.

Roger always picks Danny up since otherwise he would have to ride the school bus which is "uncool." Roger relates an incident of vandalism in which a despised neighbor's flower garden has been trampled in the night by him and his friends. They stop at a store to pick up some cigarettes. Danny knows that smoking is prohibited in school but he will take his chances on getting caught. He was only caught once before and that time he had to leave school for a week. It wasn't so bad, though, since he talked the manager of the hamburger stand where he works into letting him work full time for the week.

Danny enters the school just as the last bell is ringing and knows he will be late again. The teacher has already told him he will have to stay after school for the entire week anyway so it doesn't matter. Once in class he heads for his seat at the back of the class by the window; he caused such a ruckus at the beginning of school that the teacher kept moving him each week until she found a place that kept him quiet. He hasn't been paying attention in math class since the last test that he flunked two weeks ago. His teacher has given up on him since he failed to return the remedial assignments she gave him right after that. His dad has told him that math is not important anyway and that all he really needs to be able to do is "Subtract well enough to cheat old Uncle Sam at income tax time." His other classes proceed little differently and he decides by lunch time that he will cut his afternoon classes and go to work early.

The manager believes Danny when he says that school has been let

out early; besides, he can use the extra help today. Danny is a fairly good worker and tries hard but is not very dependable about arriving on time. The manager has "spoken to him about it" but Danny always seems to have some elaborate excuse prepared. He gets off work at 10:30 p.m. and has already made arrangements for his buddies to pick him up afterwards. They have a "foolproof" plan for sneaking into the drive-in and will try to carry it out tonight. If he arrives home before midnight it will be unusual; that this cycle will repeat itself is almost certain.

This example of the way in which Danny's behavior has been and is currently being shaped by the consequences in his social environment is probably representative of most delinquents to a greater or lesser degree. To change a repertoire which has been slowly established by social consequences over the past several years by simply talking with the child seems at the outset unlikely to succeed. A technique which may be more relevant, is one which seeks to change the delinquent's repertoire by changing the consequences for it.

Behavior Modification in Probation

As with any technique, behavior modification has limitations which govern conditions under which it can reasonably be expected to work. There do not appear to be many of these but they should be mentioned at this point.

Limitations

To re-program the environment which controls delinquent behavior there is a pre-requisite: at least one parent capable of setting up

contingencies. This does not mean that they must be able to dream up exotic contingencies or be hard and unyielding individuals. They do have to be physically present often enough to monitor behavior and to deliver consequences. That is, if there is only a mother in the home and she works from 2 till 10:00 p.m. weekdays and 8-5 on weekends she will not be able to monitor the boy who does not come home after school, nor see to it that he does his homework, or that he stays away from the bad influence of certain other boys.

If there is at least one parent, the court can in most cases provide the motivation for their cooperation. The judge says in essence, "If your boy does not straighten up we will take him away from you." In addition, a probation officer's attention and praise plus the improvement in the child's behavior will usually be enough to maintain the willingness to cooperate of at least one parent. If the parents are not willing to cooperate, the court always has the option of putting the child with foster parents. Motivation for the parents is then not a strong limitation but may be a problem in some cases.

A further possible limitation of the use of behavior modification in probation is the age or maturity of the child to be helped. A child in the 17-18 year age range almost certainly has a long history of juvenile crime and may be considered an advanced delinquent over whom contingency control may simply be impossible. The child in this age range who has quit school and has a job but is living at home and getting into trouble may not be amenable to the types of contingencies to be used. That is, he is functionally not dependent on his parents for support. Any attempt to control reinforcers or monitor behavior may result in the child simply leaving home. In such cases it may be more

advisable to work through the delinquent's employers.

The last limitation of the use of behavior modification in probation is the type of delinquent act involved. Obviously if the juvenile has been brought before the court for an act of violence and is considered dangerous, placing him back in the community may be ill advised. A very small percentage of all juvenile delinquencies may fall into this category (4.3% assault cases according to Lunden, 1964).

Applications

The population of delinquents who may be amenable to the type of probation to be described consists of those between 10-16 years who commit non-violent acts and have at least one parent at home. About 80% of all delinquents meet these requirements.

The first step is the compilation of the most significant inappropriate behaviors that the delinquent shows. Most often these will include failure of the child to attend school regularly, to do well when there, and his involvement in disruptive activities. School failure is significant because it indicates the inability of the delinquent to perform under the adverse conditions described earlier which are functionally similar to conditions in the "real world." Failure to complete junior high or high school will automatically place the youth at a disadvantage in obtaining a good job and he may, therefore, readily turn to illegal sources of reinforcement. Parents also usually complain that the youth won't follow orders at home or accept responsibility for certain tasks. In addition, staying out late with the "wrong kids" is listed the majority of the time and is probably most closely related to the delinquent act which brought the child to the

court.

The next step is the listing of potential reinforcers which the child may earn. This is, of course, idiosyncratic to individuals but usually includes money, use of the phone, T.V. and perhaps a bicycle. Other reinforcers may be staying up late, dating, driving the car, or holding a part-time job.

Finally, a program is set up, usually by negotiation, whereby the parents agree to furnish certain of the reinforcers contingent on successive approximations to the desired behavior. Most parents are over-eager and want to set the criterion too high initially, but usually can be persuaded to go a little slower in setting up contingencies.

In order to monitor school attendance and participation I have found it invaluable to send a note at least once a week that the teachers mark and sign for each class. In some cases a daily report card is necessary and most teachers are willing to cooperate with this if they think it will help to control a delinquent's class behavior. For one student who was habitually tardy an arrangement was worked out whereby the attendance clerk (most junior high and high schools have such a person) dispensed the child's lunch money to her contingent upon the student arriving at school on time. (The mother brought the child's lunch money for the entire week in separately marked envelopes each Monday morning before school to the clerk to dispense.)

In another case, a boy had to bring a daily note from the attendance clerk to his employer at his after school job. The note was given to him only if he had attended all of his classes and had not been sent to the office during the day. If he did not have the note he could not work. Both cases generated flawless attendance records

after a couple of misses by both students.

Certain home chores are then set up and reinforcers for them agreed upon by the parents. Straightening up his room, making his bed, and taking out the trash for one boy was the ticket for the use of T.V. and permission to work on model planes. Unannounced visits and calls to the parents can be made which insure the response-reinforcement relation.

Coming home on time from school and not staying out late are two behaviors which must be closely monitored in any program designed to increase control by the parents and lessen the control by the peer group. Often this can be done by making an allowance, dating privilege, or permission to use the car on weekends contingent on being home at the appointed time. In another case, a youth may be told that he can go out with his friends after dinner as long as his homework is done or if he got a certain grade in class for that day. In this way contact with other delinquent peers can be cut very sharply and thus their control can be lessened.

All of these arrangements can be written into the probation orders which are issued by the Juvenile Court, signed by the Judge, the child and the parents, and sealed by the clerk of the Court. In addition to the above contingencies other restrictions may be placed on the child for his welfare. The most common of these is to put certain places where gangs gather, off limits to the probationer (this is enforced by making periodic spot checks).

Ideally, the parents, with the help of the P.O., should be able to program reinforcers for all the behaviors needed to rehabilitate their delinquent youth. This repertoire includes at least three

general areas of development: self care, academic, and social behaviors.

For example, the youth should be well groomed (hair combed, hands clean, regular baths, teeth brushed) and neatly dressed (clean clothes, shirt tucked in, shoes polished) and he should keep his personal room and possessions in reasonable order on a regular basis. This also means learning to do chores which make orderly maintenance possible such as washing floors, taking out the trash, washing dishes, taking care of pets, and so on.

Appropriate academic behaviors include regular attendance at school (on time), cooperation with teachers and principals, and orderly interaction with peers. In class he should sit quietly and pay attention and obey the class rules, in addition to actively participating in class discussions when appropriate. He should complete assignments on time, and in order to pass, should earn at least a D in all classes (hopefully better). In order to learn appropriate social interactions he should participate in one or more school organizations and take some active role and responsibilities in carrying out its functions. This may seem like a large order but it is no more than the average non-delinquent normally does in school.

An appropriate social repertoire is probably largely sampled in the public school setting since the youth must interact appropriately with teachers, counselors, and principals on a regular basis. He should also be able to handle interactions with other significant adults such as employers, shop owners, neighbors, and policemen. On these occasions he needs to know how to ask and answer questions in a non-offensive manner, to give information without sounding arrogant,

superior, or threatening. (Dale Carnegie has specified many socially acceptable repertoires that most delinquents could benefit from). He should carry out requests cheerfully and efficiently with a minimum of commotion and bother to others. The delinquent also needs to learn which people to stay away from because they will get him into trouble and which ones to associate with because he will learn something constructive from them. Although not strictly social, the youth probably would benefit from developing an interest in some skill or hobby that can occupy his time without his having to rely on social stimuli for reinforcers.

Summary and Conclusions

Traditional probation practices, where the juvenile offender is labeled a "delinquent" and told to follow certain "orders of the court" have not proven to be highly effective, judging from available data. Behavior modification research with delinquents has been carried out recently which suggests that their behavior is just as modifiable as any other subject population. A behavioral analysis of the delinquent repertoire suggests that adults in general and parents in particular control very little of the behavior of delinquents. This lack of control is seen as the primary determinant of delinquent behaviors. Finally, ways in which appropriate behavior on the part of delinquents can be generated, based on the findings of related research have been outlined for some common problem behaviors. It is hoped that this type of analysis may be helpful in improving probation practice to the point where it will be capable of modifying the behavior of juvenile offenders.

REFERENCES

- Ayllon, T. Intensive Treatment of Psychotic Behavior by Stimulus Satiation and Food Reinforcement. Behaviour Research and Therapy, 1963, 1, 53-61.
- Ayllon, T. and Michael, J. The Psychiatric Nurse As A Behavioral Engineer. Journal of the Experimental Analysis of Behavior, 1959, 2, 323-334.
- Barnes, H. E. and Teeter, N. K. New Horizons in Criminology (2nd ed.). New York: Prentice Hall, 1955.
- Beard, B. B. Juvenile Probation. New York: American Book Co., 1934.
- Birnbrauer, J. S., Bijou, S. W., Wolf, M. M., and Kidder, J. D. Programmed Instruction in the Classroom. In L. P. Ullmann and L. Krasner (Eds.), Case Studies in Behavior Modification. New York: Holt, Rinehart, and Winston, Inc., 1965.
- Bloch, H. A. and Flynn, F. T. Delinquency: The Juvenile Offender in America Today. New York: Random House, 1956.
- Burchard, J. and Tyler, V. The Modification of Delinquent Behaviour Through Operant Conditioning. Behaviour Research and Therapy, 1965, 2, 245-250.
- Bushell, D., Wrobel, P. A., and Michaelis, M. L. Applying "Group" contingencies to the Classroom Study Behavior of Preschool Children. Journal of Applied Behavior Analysis, 1968, 1, 55-61.
- Caldwell, R. G. The Juvenile Court: Its development and some major problems. Journal of Criminal Law, Criminology and Police Science, 1961, 51, 493-511.

- Cohen, H. L., Filipczak, J., and Bis, J. S. Case I: An Initial Study of Contingencies Applicable to Special Education. Silver Spring, Maryland: Educational Facility Press, 1967.
- Diana, L. What is Probation? Journal of Criminal Law, Criminology and Police Science, 1960, 51 (1), 189-208.
- Dressler, D. Practice and Theory of Probation and Parole. New York: Columbia University Press, 1959.
- Eaton, J. W. and Polk, W. Measuring Delinquency. Pittsburg, Pa.: Pittsburg University Press, 1961.
- Glueck, S. and Glueck, E. One Thousand Juvenile Delinquents. Cambridge: Harvard University Press, 1934.
- Glueck, S. and Glueck, E. Juvenile Delinquents Grown Up. New York: The Commonwealth Fund, 1940.
- Hackler, J. C. Evaluation of Delinquency Prevention Programs: Ideals and Compromises, Federal Probation, 1967, 1, 22-26.
- Harris, F. R., Wolf, M. M., and Baer, D. M. Effects of Adult Reinforcement on Child Behavior. In The Young Child: Reviews of Research. Washington, D. C.: National Association for the Education of Young Children, 1967.
- Hart, B. M. Reynolds, N. J., Baer, D. M., Brawley, E. R., and Harris, F. R. Effect of Contingent and Non-contingent Social Reinforcement on the Cooperative Play of a Preschool Child, Journal of Applied Behavioral Analysis, 1968, 1, 73-76.
- Haughton, E. and Ayllon, T. Production and Elimination of Symptomatic Behavior, In L. P. Ullmann and L. Krasner (Eds.), Case Studies in Behavior Modification. New York: Holt, Rinehart, and Winston, Inc., 1965.

- Healy, W. and Bronner, A. F. Delinquents and Criminals: Their Making and Unmaking. New York: Macmillan, 1926.
- Hoover, J. E. Uniform Crime Reports 1967. Federal Bureau of Investigation, Department of Justice.
- Johnson, F. R. Probation for Juveniles and Adults. New York: The Century Co., 1928.
- Journal of Applied Behavioral Analysis, 1968.
- Kane, J. An Institutional Program for the Seriously Disturbed Delinquent, Federal Probation, 1966, 30 (3), 37-44.
- Kansas Juvenile Code, Ch. 38, Art. 8, 1965.
- Keve, P. W. Imaginative Programming in Probation and Parole. Minneapolis: University of Minnesota Press, 1967.
- Lemert, E. M. The Juvenile Court: Quest and Realities. In Task Force Report: Juvenile Delinquency and Youth Crime. Washington, D. C.: Government Printing Office, 1967.
- Loble, L. H. and Wylie, M. Delinquency Can Be Stopped. New York: McGraw Hill, 1967.
- Lovaas, O. I., Schaeffer, B., and Simmons, J. Q. Building Social Behavior in Autistic Children by Use of Electric Shock, Journal of Experimental Research in Personality, 1965, 1, 99-109.
- Lunden, W. A. Statistics on Delinquents and Delinquency. Springfield, Ill.,: Charles C. Thomas, 1964.
- Madsen, C. H. Jr., Becker, W. C., and Thomas, D. R. Rules, Praise, and Ignoring: Elements of Elementary Classroom Control, Journal of Applied Behavior Analysis, 1968, 2, 139-150.

- Martin, M., Burkholder, R., Rosenthal, T. L., Tharp, R. G., and Thorne, G. L. Programming Behavior Change and Reintegration into School Milieux of Extreme Adolescent Deviates, Behaviour Research and Therapy, 1968, 6 (3), 371-383.
- Meichenbaum, D. H., Bowers, K. S., and Ross, R. R. Modification of Classroom Behavior of Institutionalized Female Adolescent Offenders, Behaviour Research and Therapy, 1968, 6 (3), 343-353.
- Newman, E. S. An Experiment in Intensive Probation with Boys, Crime and Delinquency, 1962, 8 (2), 151-160.
- Perlman, I. R. Delinquency Prevention: The Size of the Problem. Washington, D. C.: U.S. Department of Health, Education, and Welfare, 1960.
- Phillips, E. L. Achievement Place: Token Reinforcement Procedures in a Home-style Rehabilitation Setting for "Pre-delinquent" Boys, Journal of Applied Behavior Analysis, 1968, 3, 213-223.
- Rosenheim, M. K. (Ed.). Justice for the Child. New York: Free Press of Glencoe, 1962.
- Rubin, S. The Legal Character of Juvenile Delinquency, The Annals of the American Academy of Political and Social Science, 1949, 261, 1-8.
- Schreiber, P. How Effective are Services for the Treatment of Delinquents?, Facts and Facets No. 9, 1960, U.S. Department of Health, Education, and Welfare.
- Schwitzgebel, R. A New Approach to Understanding Delinquency, Federal Probation, 1960, 24, 31-35.

- Schwitzgebel, R. Street Corner Research. Cambridge: Harvard University Press, 1964.
- Staats, A. W. and Butterfield, W. Treatment of nonreading in a culturally deprived juvenile delinquent: An application of reinforcement principles. Child Development, 1965, 36, 925-942.
- Sutherland, E. H. and Cressey, D. R. Principles of Criminology. Philadelphia: J. B. Lippincott, 1966.
- Tappan, P. Juvenile Delinquency. New York: McGraw-Hill, 1949.
- Tappan, P. Crime, Justice and Correction. New York: McGraw-Hill, 1960.
- Tate, B. G. and Baroff, G. S. Aversive Control of Self-injurious Behavior in a Psychotic Boy, Behaviour Research and Therapy, 1966, 4, 281-287.
- Task Force Report: Juvenile Delinquency and Youth Crime. Washington, D. C.: Government Printing Office, 1967.
- Teeters, N. K. and Matza, D. The Extent of Delinquency in the United States, The Journal of Negro Education, 1959, 28, 200-213.
- Thorne, G., Tharp, R., and Wetzell, R. Behavior Modification Techniques: New tools for probation officers. Federal Probation, June, 1967.
- Tyler, V. O. Application of Operant Token Reinforcement to Academic Performance of an Institutionalized Delinquent, Psychological Reports, 1967, 21, 249-260.
- Tyler, V. O. and Brown, G. D. The use of swift, brief isolation as a group control device for institutionalized delinquents. Behaviour Research and Therapy, 1967, 5, 1-9.

- Tyler, V. O. and Brown, G. D. Token Reinforcement of Academic Performance with Institutionalized Delinquent Boys, Journal of Educational Psychology, 1968, 14, 413-423.
- Ullmann, L. P. and Krasner, L. Case Studies in Behavior Modification. New York: Holt, Rinehart, and Winston, Inc., 1965.
- Ulrich, R., Stachnik, T., and Mabry, J. Control of Human Behavior. Glenview, Ill.,: Scott, Foresman and Company, 1966.
- Vasoli, R. H. Some Reflections on Measuring Probation Outcome, Federal Probation, 1967, 31 (3), 24-32.
- Wolf, M. M., Risley, T., and Mees, H. Application of Operant Conditioning Procedures to the Behaviour Problems of an Autistic Child, Behaviour Research and Therapy, 1964, 1, 305-312.
- Wolf, M. M., Giles, D. K., and Hall, R. V. Experiments with Token Reinforcement in a Remedial Classroom, Behaviour Research and Therapy, 1968, 6, 51-64.